The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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WHEAL GRACE MINE, NEAR TAVISTOCK.— VALUABLE MINE MATERIALS, DOUBLE-ACTING ROTARY STEAM-ENGINE, &c., FOR SALE.

TO BE SOLD, BY AUCTION, by F. A. DAVIS, on Thursday, the 14th day of Dec., 1848, at Eleven o'clock in the forenoon, at WHEAL GRACE MINE, in the parish of SOUTH SYDENHAM, about 3¼ miles from Tavistock, the undermentioned

MACHINERY AND MATERIALS OF THE SAID MINE: 1

Comprising 2 10-feet 11-inch pumps, 6 9-feet 11-inch ditto, 2 10-feet 10-inch working-barrels, 1 9-feet 11-inch windbore, 1 6-feet doorpiece and door, 18 fathoms 11-inch bucket-rods, with joints, an excellent pair of shears, with pulleys and brasses, complete, a superior capstan, 110 fathoms 11-inch capstan-rope (nearly new), 2 poppet-heads and pulleys, 2 horse-whims, with oak axles and arms, a piece of 10-inch rod, with plates, caps, and brasses, an extra 13-inch engine beam, with king-post, strapping-plates, bearings, and brasses, complete, about 60 fathoms of whim-rope, 60 fathoms fall rope, and a quantity of lashings, set of double and treble blocks, large and small beams, stands, scales and weights, several whim and winze kibbles and water barrels, set of screw taps and plates, from 1¼ to ¾-inch, plummer blocks, brasses and bearings, about 60 fathoms of ¾-inch and 9-16th chain, a quantity of bolts and burs, an excellent 40-inch smith's bellows, smith's anvil, vice, horse, screw stock, grindstone and frame, set of chain bevils, bucking-plates, cobbing irons and hammers, staples and glands, clack-seatings, a quantity of smiths' and miners' tools, sledges, &c., new iron, scrap and useful ditto, several selves and copper bottoms, piece of American oak, shaft-door, smiths' and miners' chests, saw-pit frame, with a large wood shed, hand and wheelbarrows, a large quantity of dividing and casing timber, wood air-pipes, hutches, buddle, tie and floors, a small quantity of leather, with a variety of useful articles for mining purposes, together with the COUNT-HOUSE FURNITURE, consisting of deal tables, cane-seat chairs, &c.

Also, a very superior 22-inch cylinder DOUBLE-ACTING ROTARY STEAM-ENGINE, and drawing apparatus attached, with a 12-ton boiler.

This engine, which is in exceedingly good condition, substantially and well fitted, was constructed by Messrs. Hocking and Loam, the well-known engineers, and is justly estimated in this locality as one of the most efficient of its class.

Prior to the sale of the materials, the above SETT, to search for minerals for 18 years yet to come, at a 15th dues, will BE OFFERED FOR PUBLIC COMPETITION, and which presents to the speculative advantages not often met with, inasmuch as it abounds with promising lodes of silver-lead and copper, and the late adventurers raised therefrom 30 tons of lead ore in three months.

Refreshments punctually at Eleven o'clock.

The whole may be viewed by application to Capt. Robins, on the mine; and any further particulars obtained of him, or of the auctioneer, at his office, at Tavistock.

County Fire and Provident Life Offices, West-street, Tavistock, Nov. 29, 1848.

TO BE SOLD, OR LET ON ROYALTY, the DARLASTON GREEN COLLIERY AND IRONSTONE MINES, 2

In the district of SOUTH STAFFORDSHIRE, now working by the "Galvanised Iron Company."

These MINES comprise about 26 acres, held under lease, of which about 23 years are unexpired. They contain all the measures of IRONSTONE usually found in that locality—the excellence of the quality of which is well known, and a small portion of the New Mine Coal, the greater portion of which has been worked. The mines have recently been opened, and drained at a considerable expense, and are now in complete working order. There are a sufficient number of shafts sunk on the estate to get the whole of the mines; and a very trifling outlay will open the measures of ironstone which are not now at work.

The PUMPING and WINDING-ENGINES are perfectly EFFECTIVE, and all the PLANT in EXCELLENT REPAIR. The Birmingham Canal runs into the estate, and there is abundant demand for the produce of these mines at the surrounding iron-works.

For further particulars, apply at the office of the Galvanised Iron Company, 3, Mansion-house-place, London; or to Mr. Taylor, King Hill-field, Darlaston.

TO BE SOLD, OR LET ON LEASE (FREEHOLD), the PHŒNIX IRON-WORKS, WEST BROMWICH, 3

In the district of SOUTH STAFFORDSHIRE, at present carried on by the "Galvanised Iron Company."

These WORKS, which are amongst the most eligible and complete in the district, comprise the following MILLS and FORGES—viz.:

1. An ENGINE, of 100-horse power, by Boulton and Watt, in brick engine-house, with two 35-feet boilers, and all the requisite machinery, of the best description, recently erected, driving a forge; a 20-inch BOILER-PLATE TRAIN, and a RAIL MILL—appended to which is a small ENGINE, of 10-horse power, with two PUNCHING and STRAIGHTENING MACHINES for RAILS—complete.

2. An ENGINE, of 60-horse power, by J. and G. Davis, in brick engine-house, with three 25-feet boilers, with powerful machinery, driving a forge; an 18-inch BOILER-PLATE and SHEET MILL; and a 16-inch TRAIN, for the manufacture of Bars, T Iron, and Angle Iron. Attached to this work, is an ENGINE, of 20-horse power, on cast-iron frame, driving a small 8-inch MERCHANT TRAIN, SAW, and TURNING-LATHE.

With these Mills and Forges are 34 PUDDLING and HEATING FURNACES—the whole standing on about two acres of freehold land, bounded by the main road on one side, and by the Birmingham Canal on the other, on which are the necessary wharfages for the use of the works.

The capacity of the works is equal to about 350 to 400 tons of finished iron weekly.

Adjoining the works, on a separate tenure, are a MANAGER'S HOUSE, with about FIVE ACRES of LAND, and FOUR WORKMEN'S HOUSES.

There is an extensive assortment of ROLLS, for the manufacture of the various descriptions of iron for which these works have been long known, and for which there is an extensive and established connection—the whole forming a most complete and valuable establishment for the supply of manufactured iron in all its branches.

For further particulars, apply either at the offices of the Galvanised Iron Company, 3, Mansion-house-place, London; or to Mr. Spencer, on the premises.

NEAR PONTYPOOL, MONMOUTHSHIRE.

VALUABLE COLLIERY, BRICK FACTORY, FARM, COTTAGE RESIDENCE, &c.

TO BE LET, OR SOLD BY PRIVATE CONTRACT, all that VALUABLE and well reputed COLLIERY, called the 4

BLAENDARE COLLIERY,

Comprising all those VEINS of COAL called the Rock Vein, the Meadow Vein, the Red Vein, the Droideg Vein, and the New Vein, with several other veins of coal not yet opened to, lying under a tract of land comprising together about 281 acres, together with certain pieces of LAND, NINETEEN WOREMEN'S COTTAGES, TWO GARDENS, AGENT'S HOUSE, WEIGHING MACHINE, SMITHIES and CARPENTERS' SHOP, STABLING, GRANARY, and OTHER CONVENIENCES, at the mouth of the level.

The above veins of coal are found under this property in high perfection, as to quality and thickness, with great facilities for gaining the same; and the colliery, when in full work, is capable of producing from 60,000 to 100,000 tons of coal per annum, or even more. Appended to the colliery are a cottage and garden, and also a close of land, called the "Boat-house Meadow," on the bank of the Monmouthshire Canal, with the dry dock, two or more smaller cottages and office, carpenters' shop, stable, gig-house, and other buildings thereon.—Also, the

BLAENDARE BRICK FACTORY,

Near to the above, with the WATER-WHEEL and OTHER MACHINERY, DRYING STOVES, TWO KILNS, and FOUR WORKMEN'S COTTAGES, and OTHER ERECTIONS thereto belonging, capable of manufacturing a million of bricks per annum.—Also,

THIRTY LABOURERS' COTTAGES,

Near the Brick Factory, let upon lease of 21 years, at £70 a-year, with TWO COTTAGES, STABLING, &c., let for a term, of which 12 years are unexpired, at a ground rent of £3 per annum.—Also, BLAENDARE FARM,

Comprising a pleasantly situated and neat COTTAGE RESIDENCE, called "Blaendare Cottage," with three sitting-rooms, gardens, stabling, coach-house, and other offices, and about EIGHTY-EIGHT ACRES of capital MEADOW and PASTURE LAND, being part of the before-mentioned 281 acres, together with a TRACT of MOUNTAIN LAND adjoining, called "Mynydd Maen," on which grousing may be had.

The whole of the above properties, which lie contiguous to each other, are of freehold tenure, and are known by the general name of the BLAENDARE ESTATE, and are situate in the several parishes of PANTEAGUE and MONYTHUSLOYNE, in the county of MONMOUTH, at a short distance from the excellent market town of Pontypool, and within half a mile of the new line of locomotive railway, intended shortly to be extended into and through this property, and now nearly finished, between Pontypool and Newport, which is the port of shipment for the produce of the colliery, and from which it is only nine miles distant.

In addition to the valuable veins of coal above-mentioned, the Blaendare Estate abounds in IRON ORE and FIRE CLAY, of the best quality, and offers a very desirable site for the erection of iron-works thereon.

There is a valuable STONE QUARRY on the estate, with a railway communication therein.—Also,

TROSNANT HOUSE and COTTAGES, and TWO ACRES of rich MEADOW LAND, with coach-house, three-stall stable, and open stable garden, &c., in the occupation of Mr. W. J. Monkhouse, in the parish of Trevethin, and county of Monmouth.—Also,

NINETEEN CANAL BOATS, ONE HUNDRED and FIFTY-TWO TRAM WAGGONS, and about FOUR MILES of RAILROAD, with OTHER MOVEABLES, to be taken at a valuation.

Possession of the colliery and brick factory may be had on the 1st of January next, and of the cottage residence, farm, and lands, on the 2d of February next.

Two-thirds of the purchase-money might remain on mortgage.

For further particulars apply to the proprietor, J. Maund, Esq., Ty Mawr, near Abergavenny; to Wm. Llewellin, General agent, Pontypool; Mr. W. J. Monkhouse, Trosnant House, near Pontypool; or to Messrs. Gabb and Secretan Woodhouse, solicitors, Abergavenny—at whose offices, as well as at Mr. Llewellin's, the maps and scale of coal may be seen.

GREAT HEWAS CONSOLS MINE, near ST. AUSTELL, CORNWALL.—TO BE SOLD, BY PUBLIC AUCTION, at the RED LION HOTEL, TRURO, on Wednesday, the 20th day of December next, at One o'clock in the afternoon (unless previously disposed of by private contract, of which due notice will be given), from FORTY to ONE HUNDRED and NINETY (of 196ths) SHARES, or the ENTIRETY, as may be then and there determined, of the MINE, with the MATERIALS, TINSTUFF, and LEAVINGS thereto belonging.

The mine is forked only to the 44 fathom level; and, notwithstanding the recent very low price of tin, has been, even at that level, nearly paying her cost for many months past; and, with the *important discoveries lately* made at the adit and shallow levels, the vast extent of tribute tin ground already seen in the levels, not yet cleared for working, and the rise in the price of tin, there can be no doubt of this mine becoming a most profitable investment, and that with a very little further outlay.

There is an engine, of 66-inch cylinder, at work, which is sufficiently powerful to drain the mine 100 fathoms deeper, or 30 fathoms below the present bottom level.

Water-wheels are erected, capable of working from 60 to 70 heads of stamps; the pit-work, &c., is new, and the whole plant of materials suitable for carrying out the mine on an extensive scale.

A large proportion of the present adventurers are of the highest respectability, and the course thus adopted is not from an unwillingness on their part to carry out the mine, but from a cause quite unconnected with themselves, and to which they very reluctantly submit—*satisfactory proofs* of which will be given at the time of sale.

The sale will be free of every liability beyond the purchase; and to capitalists, or to a few persons who might wish to join in a safe undertaking, an opportunity is thus afforded but rarely to be met with.

Further particulars may be known on application to Richard Pearce, Esq., Penzance; the agents on the mine; or to Mr. William Browne, auctioneer, Charlestown, St. Austell, Cornwall.—Charlestown, Nov. 27, 1848.

MINES IN SWEDEN WORTHY OF NOTICE.—In addition to the geodetical description given by the mining attorney, Mr. Henry Gahn, respecting the veins of ore of the Loos Mining Company, it may be mentioned, that the parish of LOOS is situated in the province of HELSINGLAND, at its junction with the GREAT COPPER DISTRICT, at the distance of about 18 miles (Swedish) from the seaport towns of HUDIKSWALL and SODERHAMN, and 10 miles from FAHLUN.

The parish of Loos consists of ground partly well cultivated, and especially of ground susceptible of improvement, and possesses within itself, and within all the adjoining parishes, an inexhaustible supply of wood. In the neighbourhood of the veins of ore—namely, 1¼ mile from the Hallstensberg, and about 1 mile from the other localities, there are many large watercourses, with suitable waterfalls, for the erection of forges and other works.

At HALLSTENSBERG the company possesses a manor-house, dwelling-houses for the labourers, smithy, with necessary appendages, as well as a powder magazine. The MINES of Hallstensberg are covered in, and, for the working thereof, there are wind-lasses, with cast-iron blocks, drawing-up buckets (iron bound), wheelbarrows, &c.

From want of capital, the company's VEINS of ORE and LIMEPITS, together with the BUILDINGS and all UTENSILS, &c., are OFFERED for the sum of TWENTY THOUSAND (20,000) RIX DOLLARS, Swedish Bank money.

Hudikswall, the 23d October, 1848.

On behalf of the Loos Mining Company,
(Signed) EDWARK FRISK, } Directors.
JULIUS BRUN, }
For further particulars, apply to UNONIUS & PATON,
16, Great St. Helens.

EXTENSIVE AND VALUABLE MINERAL PROPERTY AND IRON-WORKS FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, THE VENALLT COAL AND IRON-WORKS,

Situate on the south side of the RIVER NEATH, GLAMORGANSHIRE, about 8 miles from the port of Neath, and 14 from the port of Swansea, with all the necessary appendages for carrying on the smelting of iron, and an extensive shipping trade of stone coal and stone coal culm. 5

The property comprises long leases of coal and ironstone, extending over about 1000 acres of land, in a ring fence, which are taken on favourable terms. The coal is anthracite, and three veins, of an aggregate thickness of about 25 feet, are effectually opened by level, for the supply of 100 to 200 tons per day.

The ironstone veins are abundant and rich, and sufficiently opened by level to yield an ample supply for three furnaces. There is also valuable black-band, extending over a large acreage.

The works consist of an engine-house for a pair of engines, one 50-horse high-pressure blowing engine, two blast-furnaces, with all the necessary hot-blast stoves, casting-houses, foundry, finery, &c.

The works and colliery are in operation, and any person who may be desirous of purchasing, will be treated with on liberal terms.

Reports recently made on the property, by Messrs. John Southan, of Bilston, and W. P. Struvé, of Swansea, may be seen, on application to Messrs. Jevons and Wood, Neath; Messrs. Llewellyn and Randall, solicitors, Neath; or to Messrs. Rowland, Hacon, and Rowland, solicitors, 38, Threadneedle-street, London.

FOR SALE, BY PRIVATE CONTRACT—A single-acting PUMPING-ENGINE—cylinder 30-inch diameter, 9-feet stroke, equal beam, with 7-ton boiler, cisterns, spring beam, and first set of rod-shafts attached, being the engine of Wheal St. Cleer.—For particulars, apply to Capt. Osborne, Liskeard; Mr. West, engineer, St. Blazey; or Mr. Rendle, the purser, 13, Octagon, Plymouth. 6

STEAM-ENGINES.—From 8 to 20-horse power ENGINES ALWAYS IN STOCK.

Apply to Mr. CAPPER, Engine-Maker and Founder, BIRMINGHAM.
Price—£12 to £16; with boiler, £22 per horse. 9

CAMERON'S COALBROOK STEAM COAL & SWANSEA AND LOUGHOR RAILWAY COMPANY.
Registered and Incorporated. 10

Whereas an Extraordinary General Meeting of the shareholders of this company was held in the company's offices here, on Wednesday, the 15th day of Nov. inst., and the same was adjourned to Friday, the 15th day of December next.

Notice is hereby given, that the said ADJOURNED EXTRAORDINARY GENERAL MEETING of the shareholders of this company will be HELD in the company's offices here, on Friday, the said 15th day of December next, at One o'clock in the afternoon precisely, for the purpose of considering the report of the committee of shareholders, appointed at the General Meeting on the 28th of July last, and of disposing thereof, and of dissolving the said committee. Also, for the purpose of considering, amending, altering, or repealing certain rules, regulations, and provisions of the Deed of Settlement, regulating and incorporating the company, to be then submitted to the meeting, and of entering into such resolutions thereon as may be necessary for carrying the same into effect.

By order of the board of directors, A. C. HOWDEN, Sec.
Company's offices, 9, Moorgate-street, London, Nov. 27, 1848.

KINGSETT AND BEDFORD SILVER-LEAD AND COPPER MINES.

These MINES are situate in the parish of MARY TAVEY, near TAVISTOCK, Devon. The sett is one mile from east to west, and half a mile from north to south, adjoining the Old Wheal Friendship Mine, that has returned a profit to the adventurers of £300,000, and is still in active and profitable working. To the north thereof is the Old Wheal Betsy Mine, which was worked for upwards of 60 years, and produced tens of thousands of tons of rich silver-lead. To the west the North Wheal Friendship party have commenced operations, and to the East Wheal Jewel is about to be set to work by the Caradon party. 11

The COPPER LODES in this sett are four in number, parallel to the Great Wheal Friendship lodes, and looking equally encouraging. The lead lodes are five in number; one or two have been already cut, and proved exceedingly valuable. The most remarkable feature in this mine is, that no machinery of any description is required, as all the lodes can be cut and worked at the 40 fathom level, by means of a deep adit, which traverses the whole length of the sett, north and south, and was driven two miles, at an expense of £14,000, to unwater the adjoining mines. It was hoped that many lodes would have been discovered in driving this adit, but the occurrence of a slide prevented intersecting any; and it is now a source of regret to the former owners that they should have allowed the sett to go out of their hands, as, since their abandonment, the above valuable lodes have been discovered by two poor working miners.

The DEEP ADIT exhibits evident signs of the richest copper deposits; the oxide of this mineral—of a dark green colour—covers many fathoms of the side of the adit, at the southern part of the sett, and malleable copper has already been found in the middle of the adit. These and other circumstances convince the very best judges that but a small amount will suffice to prove the great resources of the mine, and put it in a full working condition, with certainty of immediate and large returns.

It is determined, therefore, to divide the mine into 1024 £2 10s. shares—300 of which have been already taken up in Exeter, Tavistock, and elsewhere. The first deposit to be 10s. per share—the calls not to be made oftener than two months, and not to exceed 10s.; and at a general meeting of the shareholders. The insignificance of the required sum may, at first sight, detract from the importance of the undertaking; but it must be borne in mind, that of the Great Wheal Maria Mine, now paying a dividend of £30. per share per annum, on 1000 shares, each share cost primarily but £1. The shafts and work that have been already done to the hands of the adventurers, at an immense cost, facilitate present and future operations. It is deemed unnecessary to publish the various reports of the experienced agents who have examined the mine, as a direct application to the undermentioned parties will give any information required, and also elicit the *bond fide* rich and highly mineralised character of this important undertaking. The numerous lodes in the 40 fm. level, once cut, which can be done at a small expense, and in the short space of three or four months; it is obvious that there will be from 40 to 100 fathoms of backs to be taken away, without the use of the slightest machinery, a circumstance unparalleled. The dues to the lord is 1-16th. The liability of each shareholder is not to exceed £2 10s. Sixpence in £1 is reserved on the profits of the mine as remuneration to the holder of the setts. No party will be allotted more than 20 shares.

Applications for shares to be made within 14 days to Mr. James Tunewell, the purser; or Mr. Robert Tripp, Exeter; or Mr. Henry Vatcher, Exeter; or Mr. J. Lane, 80, Old Broad-street, London.

WANTED, New, or in good condition—ONE HUNDRED and SEVENTY-FIVE YARDS of 10-inch PUMP TREES, with CAPSTAN, WIND, and T-BOBS, &c., for two lifts. 14

FOR SALE,—an ATMOSPHERIC WINDING-ENGINE, 18-horse power, with winding apparatus complete.—Apply to Peter Harris, Brierley Hill, Staffordshire.

TO TIN-PLATE MAKERS.—A FAVOURABLE OPPORTUNITY OFFERS to any PERSON well acquainted with the above trade, who can command from £1000 to £2000, to JOIN a highly respectable party (and competent to take the management of the business). Respectable references will be required.—Address "R. R. L.," 66, Queen-street, Cheapside, London. 13

London, Dec. 5, 1848.

TWENTY THOUSAND TONS OF IRON PER ANNUM. —The ADVERTISER has IMPROVEMENTS in MACHINERY which will SAVE more than FIFTY PER CENT. upon labour in the MANUFACTURING of ARTICLES, which consume, at least, 20 thousand tons of iron per annum; he would be glad to SELL, LICENSE, or WORK it in conjunction with others. It may be worked upon a comparatively small scale.—Address S. S. Robertson, 21, Regent-street, London. 14

A FAVOURABLE OPPORTUNITY OF MAKING A FORTUNE.—Any PERSON who is DESIROUS of MAKING a FORTUNE, without embarking capital, may hear of a favourable opportunity, by addressing himself by pre-paid letter, to Messrs. S. & V., 11, Stone-street, Bruges, Belgium. 15

GROWA (DELABOLE) SLATE COMPANY.—WANTED, A TRAVELLER, well acquainted with the SLATE TRADE.—Apply personally at the offices of the above-named company, 57, Threadneedle-street, City. 16

STEAM-ENGINE FOR SALE.—TO BE SOLD, a 12-horse power HIGH-PRESSURE STEAM-ENGINE, with or without boiler, quite new. Also, a CORNISH BOILER, between 8 and 9 tons, quite new.

A WATER-WHEEL, 36-feet diameter, 4-feet breast, with wrought axle, cast-iron sockets, plumber blocks and brasses, nearly new. 17

Also, other SECOND-HAND MINING MATERIALS.
Apply to J. E. MARE, Plymouth Foundry.

NEW PATENT DOUBLE CYLINDER STEAM-ENGINE —The SIMPLEST, CHEAPEST, and most ECONOMICAL EVER DEVISED, applicable to MARINE, LOCOMOTIVE, and STATIONARY PURPOSES. 18

Particulars may be had, and references given to parties for whom these engines have been erected, to whom they are giving entire satisfaction.

These improvements are applicable, in most cases, to existing single cylinder engines, and, in many cases, will effect a saving of 50 per cent. in fuel, besides adding to the power of the engine.

A 25-horse ROTATIVE, EXPANSIVE, and CONDENSING-ENGINE FOR SALE; also, a 10 and 8-horse HIGH-PRESSURE.—Apply to
JOHN GILBERT & CO., Engineers, Boston-street, Hackney-road.

MINING INVESTMENT.—Mr. R. THOMAS, of No. 8 GEORGE-YARD, LOMBARD-STREET, LONDON (who has had upwards of 20 years' experience as a mining agent in London), having made arrangements to resume PURCHASING and SELLING MINE and OTHER SHARES ON COMMISSION, begs to OFFER his SERVICES to his FRIENDS, CAPITALISTS, and OTHERS, in the TRANSACTION of such BUSINESS. The unprecedented low price of mine shares renders the present a most favourable period for investment, with the prospect of large returns.—The fullest information (without charge) will be given relative to mining operations and investments; and a survey, or inspection, if required, of any mining property will be made by a competent party, on moderate terms. 19

MR. THOS. P. THOMAS, MINING AGENT, AND DEALER IN RAILWAY, GAS, BANK, INSURANCE, AND OTHER SHARES. 20

3, *GEORGE-YARD, LOMBARD-STREET, LONDON.*

T. P. THOMAS is a SELLER of SHARES in the leading MINES of Cornwall, Devon, and Wales—paying from 10 to 30 per cent.—Statistical information afforded upon personal application, or by letter.

MINING OFFICES, THREE KING'S COURT, LOMBARD STREET, LONDON.—Messrs. R. TREDINNICK & CO. beg to draw the attention of capitalists to the DEPRESSED MARKET VALUE of SHARES in ENGLISH and FOREIGN MINES, many of which pay dividends of from 20 to 30 per cent. per annum, whilst those on the eve of so doing are selling at corresponding low prices.—Messrs. T. & Co. continue to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously upon personal application.—MONEY ADVANCED upon the above securities. 21

MR. JAMES STRIDE, MINING, SHARE, AND GENERAL AGENT, 27, SPRING-GARDENS, LONDON, has FOR SALE, SHARES in the BEST DIVIDEND-PAYING and OTHER MINES. 22

MONEY.—MESSRS. KILLICK & CO. (late WINSTANLEY, KILLICK, & Co.), SHAREBROKERS, inform their friends and the public, they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms: they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged.—6, Bank Chambers, opposite Bank of England. 23

AUSTRALIAN MINING COMPANY.—The board of directors hereby give Notice, that an EXTRAORDINARY GENERAL MEETING of the shareholders in this company will be HELD at the company's offices on Monday, the 11th day of December next, at Twelve o'clock precisely, to receive the directors' report on the present condition and future prospects of the company; at which meeting, also, a motion will be made for admitting votes by proxy at general meetings of the shareholders—whether the form of proxy be that which is prescribed by clause No. 35 of the company's Deed of Settlement, and which being an authority (until revoked) to vote at meetings generally, requires a stamp duty of 30s. (thirty shillings), or such as to limit the authority to a particular meeting, or any adjournment thereof, which latter form of proxy requires only a stamp duty of 2s. 6d. By order of the board. 24

1, Adelaide-place, Nov. 23, 1848. J. A. JOSEPH, Secretary.

BANWEN IRON COMPANY.—Notice is hereby given, that an EXTRAORDINARY SPECIAL MEETING of the shareholders of this company will be HELD at their offices, 23, Threadneedle-street, London, on Tuesday, the 19th day of December inst., at Two o'clock precisely. By order, 25

23, Threadneedle-street, Dec. 7, 1848. S. P. HARRIS, Secretary.

BEDFORD UNITED MINES.—Notice is hereby given, that a MEETING of the adventurers of this mine will be HELD at No. 30, Threadneedle-street, on Thursday, the 14th December next, at One o'clock precisely, on the general business of the company. By order of the committee of management, 26

Nov. 24, 1848. G. KIECKHOEFER, Secretary.

GADAIR MINING COMPANY.—At an Adjourned Meeting of adventurers in the Gadair Mine, held at the Queen's Arms Hotel, Cheapside, on Thursday, the 30th November, it was resolved unanimously—That the MEETING be FURTHER ADJOURNED until the 14th Dec., at the same time and place. 27

Dec. 1, 1848. H. ENGLISH, Hon. Purser.

GENERAL MINING COMPANY FOR IRELAND.— NOTICE.—A DIVIDEND of FIVE PER CENT. on the stock of this company will be PAID to the proprietors on and after Monday, the 11th inst., between the hours of Twelve and Two o'clock each day, at the company's office. By order, 28

2, Bargh Quay, Dublin, Dec. 5, 1848. THOMAS MAGUIRE, Secretary.
N.B.—The transfer books will be closed from this date to the 11th inst.

REAL DEL MONTE MINING COMPANY.—The directors of this company hereby give Notice, that they are willing to RECEIVE PROPOSALS for the PURCHASE of the WHOLE of the COMPANY'S RIGHTS, INTERESTS, PROPERTY, and EFFECTS in MEXICO, which are to BE SOLD, in obedience to the resolutions of the two Special General Courts of proprietors, of the 25th of September and 30th of October, now respectively last past.

By order of the directors, JOHN PHILLIPS, Secretary. 29

2, Duke-street, Adelphi, London, Dec. 4, 1848.

ST. JOHN DEL REY MINING COMPANY.—Notice is hereby given, that the THIRTEENTH HALF-YEARLY DIVIDEND, being SEVENTEEN SHILLINGS and SIXPENCE per share on the shares of this company, will be PAYABLE at this office on Saturday, the 9th December next, and every succeeding day, between the hours of Ten and Four. Forms for claiming the dividend may be obtained at the company's offices, and must be left three clear days for examination previous to payment. W. ROUTH, Secretary. 30

8, Tokenhouse-yard, November, 1848.

WHEAL CURTIS COPPER MINING COMPANY.— Notice is hereby given, that an EXTRAORDINARY MEETING of the shareholders of this company will take place at the company's offices, as below, on Friday, the 15th day of Dec. inst., at One o'clock precisely, for the purpose of either accepting or refusing an offer which has been made for all the company's interest in and to the setts, plant, and machinery belonging to the said company, and to make provision for the immediate discharge of all outstanding claims, and to consider the course to be pursued for winding-up their affairs. JOHN THOMAS THATCHER, } Directors.
HENRY WM. BULL, }
G. A. JACOB, Secretary. 31

Basinghall Chambers, Basinghall-street, London, Dec. 4, 1848.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

MONDAY.....Australian Mining Company—offices, at Twelve.
West Seton Mining Company—offices.
TUESDAY.....Law Life Assurance Company—offices, at One.
Licensed Victuallers' and General Fire and Life Assurance Company—offices, at One for Two.
Patent Cork-Cutting Company—Cooper's Hotel, Bonner's-street, at One.
Mutual Life Assurance Company—King's Head Tavern, Poultry, Twelve.
WEDNESDAY..Wheal Mary Mining Company—at the mine.
London and North-Western Railway—Euston Station, at One.
Great Western Railway—Paddington Station, at One.
Consolidated Investment and Assurance Company—London Tavern, One.
THURSDAY ....Bedford United Mining Company—offices, at One.
Gadair Mining Company—Queen's Arms Hotel, Cheapside, at One.
Oriental Banking Company—offices, at One.
Grand Junction Water-Works Company—offices, at Twelve.
General Annuity Endowment Association—London Tavern, at Two.
FRIDAY.....Wheal Curtis Mining Company—offices, at One.
Cameron's Coalbrook Steam Coal and Swansea and Loughor Railway Co. offices, at One.
National Provident Insurance Co.—London Tavern, Eleven for Twelve.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY.....Royal Botanic—Inner Circle, Regent's Park ..... 3½ P.M.
MONDAY .....Geographical—3, Waterloo-place ..... 8½ P.M.
Medical—Bolt-court, Fleet-street ..... 8 P.M.
TUESDAY.....Medical and Chirurgical—53, Berners-street ..... 8½ P.M.
Zoological—11, Hanover-square ..... 3 P.M.
Syro-Egyptian—71, Mortimer-street, Cavendish-square .. 7½ P.M.
WEDNESDAY .....Society of Arts—Adelphi ..... 8 P.M.
Geological—Somerset-house ..... 8½ P.M.
Graphic—Thatched House Tavern ..... 8 P.M.
Pharmaceutical—17, Bloomsbury-square ..... 9 P.M.
Literary Fund—73, Great Russell-street ..... 3 P.M.
THURSDAY .....Royal—Somerset-house ..... 8½ P.M.
Antiquaries—Somerset-house ..... 8 P.M.
Royal Society of Literature—St. Martin's-place ..... 4 P.M.
FRIDAY.....Philological—London Library, 12, St. James's-square.... 8 P.M.
SATURDAY .....Asiatic—5, New Burlington-street ..... 2 P.M.
Westminster Medical—17, Saville-row ..... 8 P.M.

GEOLOGICAL SOCIETY.

Nov. 15.—Sir H. T. DE LA BECHE (President), in the chair.

"On the Gypsum of Nova Scotia," by A. Gesner. Dr. Gesner had formerly considered the gypsum of Nova Scotia as above the coal, and corresponding in age to the similar strata in England. Further research has now convinced him of the accuracy of the views of Sir C. Lyell, who had placed it among the lower carboniferous formations.

"A Comparison of the Structural Features of the Appalachians of the United States with those of the Alps and other disturbed districts of Europe; also, on a General Law respecting Cleavage," by Professor H. D. Rogers. This paper was divided into two portions—one descriptive, the other theoretical. In the descriptive part the author sketched the structural features of the Appalachian chain, showing, by a comparison of the phenomena with those of the Alps, the Jura chain, and the palæozoic districts bordering the Rhine, that these disturbed European zones display, in the flexures, dislocations, and cleavage of their strata, the same laws which he had already, in conjunction with Prof. W. B. Rogers, of Virginia, announced as prevailing in the great mountain belt of the United States, and which they had ventured to apply to all extensive regions of uplifted or undulated strata.

Law Intelligence.

THE COPPER MINERS' COMPANY.

COURT OF CHANCERY.—DEC. 5.

LORD *v.* THE COPPER MINERS COMPANY.—This appeal from an order of Vice-Chancellor Knight Bruce was argued during the last term. The bill was filed by certain of the shareholders of the company to restrain the directors from borrowing money of the Bank of England, and doing other acts for the purpose, as alleged, of carrying on the trade of the company, instead of winding up its affairs through the instrumentality of this court. The directors put in a general demurrer for want of equity, which the Vice-Chancellor overruled, ordering them to put in an answer within a month.

The LORD CHANCELLOR now gave judgment, and observed that this was one of many experiments recently made, by parties interested in joint-stock companies, to bring their affairs within the jurisdiction of the court. His lordship had frequently occasion of late, in directing his attention to such matters, to point out the propriety of leaving these subjects of contention to be regulated by private arrangement; but he was not insensible to the danger of carrying the principle too far, though he felt great difficulty in drawing the line that ought to regulate the interference of the court. His lordship regretted very much that the Vice-Chancellor had not given his reasons for the conclusion to which he arrived in overruling the demurrer. He had taken an opportunity during the argument of looking into some of the analogous cases, but he had been unable to find in them a sufficient support for the bill. The acts complained of by the plaintiffs were the acts of the company, and in conformity with their charter. The principle ground of complaint appeared to be the contemplated conversion of shares into debentures, and the borrowing of money from the Bank of England to assist the projects of the directors. But the complainants were themselves members of the company, and had the power of seeking a redress of any grievances they laboured under, by appealing to their co-proprietors. The votes of the majority must bind the minority. If a Court of Equity was to assume jurisdiction in such matters, it could not do so without opening the door to all parties complaining of proceedings in joint-stock companies, or under deeds of partnership, who, although a minority of the body, might wish to control the proceedings of the majority. That could not be done, and any attempt to introduce such a remedy ought to be carefully guarded against. The principle which ought to regulate such cases was stated by the Vice-Chancellor Wigram, in Foss *v.* Harbottle, 2 Hare. In Mozley *v.* Alston, 1 Phil., his lordship had taken occasion to express his approbation of what was done in that case by the Vice-Chancellor. Thinking the evils of interference in such cases to counterbalance any apparent good, and to be calculated to produce very serious results, his lordship was constrained to differ from the Vice-Chancellor Knight Bruce, and to allow the demurrer.

WHEAL LOVELL MINE—LIABILITY OF SHAREHOLDERS.

COURT OF EXCHEQUER—DEC. 7.

FOX AND OTHERS *v.* WILD, M.P.—This was an action brought by the plaintiffs, who are merchants in Cornwall, against the defendant, as a proprietor of five shares in the Wheal Lovell Mining Company, to recover 161*l.* 8*s.* 2*d.* for goods furnished for the purposes of the mine. Mr. Knowles, with Mr. Smith, appeared for the plaintiff; and Mr. Martin, with whom was Mr. Atkinson, for the defendant.

It appeared that towards the close of 1845 the defendant became a proprietor of five shares in the Wheal Lovell Mine, then at work, and paid a deposit of 5*l.* per share. In April, 1846, he wrote to one of the officers of the company, stating, that he was anxious to take 14 other shares in the concern, which would make his interest equal to 16 parts of 500, into which the company was divided. In December, 1845, the defendant signed resolutions appointing the managers, purser, and other officers of the company, and it was upon the orders of those officers the goods for the value of which the action was brought were furnished. The defendant, afterwards, became dissatisfied with the concern, and gave notice of his intention to proceed under the Joint-Stock Companies Dissolution Act. Under these circumstances it was submitted that the defendant's liability was clearly established.

Mr. MARTIN contended that Mr. Wyld was not liable, because he had entered into a speculation in which there were to be 500 shares taken up, and in point of fact no more than 350 shares had ever been disposed of. It was decided, in the well-known case of Pickford *v.* Davis, 5 Mees. and W., 2, that under such circumstances a shareholder was not liable.

The LORD CHIEF BARON thought the determination of the question raised in this case depended very much whether the defendant knew that the mine was working, when he, by signing the Cost-book, gave authority to the captain, purser, and other officers to pledge his credit, as one of the shareholders.

Capt. R. S. BRYANT was then called, who stated that the mine began to work in Oct., 1845, and continued to be worked up to the present time; and that in December, 1845, when the defendant signed the book, he well knew the mine was working, and made particular inquiries as to the results.

The LORD CHIEF BARON considered that the circumstances last proved materially distinguished this case from that cited, and that the present defendant was clearly liable. He did not consider that the whole of the shares not having been taken up made any difference, for if the defendant had alone signed the Cost-book, he held that he would be liable to the payment of the claim.

Mr. MARTIN said, his client was dissatisfied with the conduct of those who had given orders for the goods for which this action was brought, and had filed a bill in Chancery for the purpose of winding up the concern. He felt, after what had fallen from his lordship, that Mr. Wyld must submit to a verdict, but he should prove that he gave notice in October, 1846, that he had ceased to be a shareholder, and he was not liable for any goods supplied after that date. The goods had been furnished between January, 1846, and October, 1847.—Mr. KNOWLES did not think the defendant entitled to the deduction claimed by him, for it was impossible that a partner wishing to retire from a concern could get rid of his liability until the partnership affairs were wound up. He thought it more prudent, however, to submit to the deduction claimed, than to reserve a question which might lead to further litigation. The amount of the goods supplied before the defendant intimated his intention to withdraw from the speculation was calculated at 108*l.* 7*s.* 9*d.*; and a verdict was accordingly taken for that sum.

MORE GOLD DISCOVERIES IN AMERICA.—The *Richmond Enquirer* says that recent and extensive discoveries of deposits of gold have been made in Louisa county, Virginia. It says, a late discovery on the land of Mr. Bowley, conducted by Messrs. Rawlins and Fisher, is said to surpass the mines of South America. The place is called "Ally Cooper's," about two miles south-west of the north branch of Paumnkey River. Mr. Rawlins, the lucky finder, washed in a small pan in a few hours (not exceeding seven) between 300 and 400 dwts. (94 cents, to the dwt.) Mr. Fisher has also discovered a very rich mine at Tinders, with the prospect of an extensive deposit or vein. The mine of Mr. T. B. Harris, wrought by Mr. G. W. Fisher, continues to yield richly, and a few hands are collecting from $100 to $175 per day. A few days since we saw a large bar of gold, weighing about 500 dwts., from the White Walnut Mine, said to be exceedingly rich."

LEAD IN AMERICA.—The lead mines at Kellogg, Arkansas county, are described as being actively prosecuted, and ore being daily brought to surface. Discoveries had been made of several new lead mines in the district; and a bed of fine coal, within a few feet of the surface, had also been found.

ON THE STRENGTH OF MATERIALS.

The following is an abstract of the third exposition* on "The Strength of Materials," by George Buchanan, F.R.S.E., President R.S.S.A., read, at the request of the council, at the meeting of the Royal Scottish Society of Arts, on Monday, the 13th November.

In regard now to the transverse strain: this, as formerly explained, is of a compound nature, both the tensile and compressive forces being brought into play. A beam, supported at the one extremity, and loaded at the other, becomes a lever, at the extreme end of which acts the weight tending to bend and break the material, by turning it round the point of support; while the power of resistance, residing in the section of fracture at the support, acts in the middle of that section, and at a distance from the centre of motion equal only to half the depth of the beam. The same is the case with a beam supported at the two extremities, and loaded in the middle; the beam, in that case, dividing itself in the centre into two levers, and half the weight acting at the extremity of each; while the strength of the beam acts as before in the centre of resistance, which is in the middle section of the beam. The notion of the beam turning round the point of support, and distending or stretching all the particles in the section of fracture, which was that of Galileo, is not correct; the centre of rotation is in a point somewhere near the middle of the beam, and all the particles below this point are distended, while all the particles above this point are compressed or crushed together, while in the centre they are neither compressed nor distended; and hence this point has been termed the neutral axis. Much discussion has arisen regarding the exact position of this neutral axis—the limit between the tensile and compressive forces—a nice question, and one of abstruse and difficult investigation; and the probability is, after all, that it is not a fixed point, but is liable to vary with the nature and intensity of the strains. Be that as it may, it fortunately happens that the practical results as to the strength of the beam is almost exactly the same, whether the axis be supposed, with Galileo, at the point of support, or, with succeeding philosophers, at a point near the centre. In every case the strength depends, as formerly explained, on the length and depth of the beam, combined with its area at the section of fracture; and by these three elements the strength can be calculated in every case, provided we ascertain by experiment the actual strength of a beam or beams of given dimensions. Numerous experiments have been made with this view, and particularly on cast-iron, by Messrs. Hodgkinson and Fairbairn, and other observers. These were made on beams of various dimensions as to length, breadth, and thickness; but the calculation is simplified if we reduce them all to a unit or standard of 1 cubic inch; taking, for example, a bar 1 inch square, resting on supports 1 inch apart, and loaded in the middle; and the average result of all the different experiments is, that such a bar of cast-iron would bear a weight of 24,400 lbs., or very nearly 11 tons. The strongest specimen was of No. 3, cold-blast, which gave 31,212 lbs., or nearly 14 tons; and the weakest, being one of No. 2, hot-blast, gave only 19,278 lbs., or better than 8½ tons. The difference as to strength between the hot and cold-blast appears to be trifling. The following are the strengths of some of the irons, given by Mr. Hodgkinson:—

Carron, No. 3, hot-blast	12·7 tons.
Ditto, ditto, cold-blast	10·9 "
Dittto, No. 2, hot-blast	11·1 "
Ditto, ditto, cold-blast	11·5 "
Low Moor, No. 2, cold-blast	11·4 "
Muirkirk, No. 1, hot-blast	10·1 "
Buffery, ditto hot-blast	10·5 "

Every other beam then, will bear in this average proportion of 11 tons, in respect of the three elements above-mentioned—viz.: 1. The section of fractnre. —2. The depth of the beam.—3. The length or distance between the supports; and the rule is, to multiply this average unit of strength of 11 tons—1. By the section of fracture.—2. By the depth.—3. Divide the product by the length. This is a universal rule, and one of most extensive application, and is here given in a somewhat simpler form than is generally found in elementary works. He then showed the effect, by experiment, on a cast-iron beam, 1 in. square, supported at the extremities at 2 ft. apart, and loaded in the middle till it broke.

By the above calculation of 11 tons for the unit, the strength would be 1068 lbs., and it first deflected greatly, and then broke all of a sudden, with a weight of 1140 lbs; and as the exact area of the bar is about 1-10th more than an inch, this gives a unit of strength very nearly that of the average above-mentioned. This specimen of iron was from Broughton Foundry, and he understood was of Summerlee iron, No. 2.

Mr. Buchanan then proceeded to the important subject of the form of the beam. The simple rectangular beam is not the one best fitted for strength in proportion to the weight of the material employed. In the first place, the centre being the weak point, the mass at the ends may be reduced and accumulated in the centre, giving the beam a curved shape on the upper or under, or on both sides; and this is the form generally adopted in large beams or girders. The ends may be safely reduced to half or two-thirds of the depth in the middle; and for a load uniformly distributed over the beam, the surface should be formed to an elliptic curve, and for a load at the centre, to a parabolic curve. But secondly, the cross section of the beam, instead of being rectangular, can be modified with great advantage, by removing the material from the central parts, and accumulating it, in the form of projections or flanges, either at the top or bottom, or both. If the flange be at the top, the cross section or the figure of the beam, looking endways is that of the Egyptian letter **T**; and if the flange be at the top or bottom, the figure is that of the letter **I**, with the head and tail extended. Originally the **T** form, with the head or flange downmost, was adopted in large manufactories or buildings for carrying brick arches, chiefly for the convenience of obtaining a bearing from which the arches on each side might be sprung. Afterwards the **I**, or double T form, was recommended, on no less an authority than Tredgold. But the knowledge and consideration of the property of cast-iron, already described, in possessing a compressive strength much superior to the tensile, has given an entirely new view to the subject, and led to very important practical results. This is a discovery due to Mr. Hodgkinson; and the experiments and investigations which he has undertaken, in conjunction with Mr. Fairbairn, have rendered most essential service in this branch of practical mechanics. The upper part of the beam being compressed by the application of a weight, and the under part distended, and the tensile resistance being three or four times less than the compressive, it is evident that the material of the beam ought to be accumulated much more at the bottom than at the top; and in order to ascertain practically how far this principle might be carried, Mr. Hodgkinson made a variety of trials of different forms, beginning with the flanges equal at the top and bottom, or the I form, then increasing the bottom flange by 10 or 12 different steps, till he found at last the greatest strength was attained when the bottom flange was six times greater than the top, and some very curious results arose from these investigations. The strength of the beams, formed according to these views, is easily calculated on the principle already explained; for, whatever be the form, it will be found that the strength is still very nearly proportional to the three elements—length, depth, and section of fracture; but the unit of strength, or standard for each beam is different. For rectangular beams of cast-iron, this unit, as explained, is at an average 11 tons. For the equal flange beam, which was formerly considered a model, the unit is no greater, but rather, if anything, less; but when the bottom flange is increased beyond the top in the ratio of 4½ to 1, the unit of strength of every inch of the beam is increased to 15 tons; and when the bottom flange is further increased in the ratio of 6 to 1, the strength is increased to 19 tons. He then showed, by experiment, the strength of a cast-iron beam, 2 ft. by 2 in. deep, the bottom flange five times greater than the top, and area of fracture, 1 in.; if rectangular, it should have broken with 2280 lbs.; but it carried 3750, and then gave way, showing an increase of strength equal to 1470 lbs. gained by the form of the section. Since these experiments of Mr. Hodgkinson, others have been lately made by Bramah and others, particularly those under the sanction of Government, in reference to the fall of the cotton mill at Oldham, by Sir H. De la Beche and Mr. T. Cubitt. These are important, as being made on a larger scale than the others. They entirely confirm the views and results of Hodgkinson; but the beams experimented on not being of the same forms, do not give the same degree of strength. On the whole, therefore, the results given above may be relied on; but the strains for perfect security ought on no account to be carried one-fourth or one-third of the breaking weight.

In many cases of railway bridges, the space between the level of the railway on the one hand, and sometimes a road, sometimes a stream or navigable river on the other, is so confined that, even with tension rods well applied, or massive girders, the span is so great as to occasion too enormous a strain to be safe or expedient; it is much better in such cases, rather than attempt to span the opening with too limited a depth of beam or girder, to acquire height by setting the girders on the outside of the railway, where an unlimited height can be obtained for arching, or frame-work of timber or iron; and this leads to the consideration of a remarkable species of bridge much used in crossing the vast openings of the American rivers, both for common roads and railways. It is termed the Frame Bridge or, Lattice Bridge. These bridges have been most extensively applied, and with complete success; and, by successive improvements, have now been brought to great perfection; and as they possess some remarkable properties, and form an excellent illustration of the principle of dividing the tensile and compressive strain into distinct members of the bridge, he thought it might not be uninteresting to the society to give a short explanation of them here. A very interesting account of these bridges, one of which, over the Susquehana at Columbia, of 29 arches, each of 200 ft. span, is about 1¼ mile in length, will be found in Mr. Stevenson's excellent work on the *Civil Engineering of North America*; and, through two engineering friends, he had been favoured with farther information and drawings, which were exhibited. The great principle of the frame bridge he then illustrated by reference to a small model. It is nothing but a simple modification of the principle of the roof, two rafters meeting in the centre of the bridge, and resting at their extremities on a tie beam; from this centre the tie beam is extended longitudinally on each side, and running horizontally to the opposite abutments; and along with it, at regular intervals, a series of rafters, running parallel with each other, and parallel with the centre one, are extended the whole length of the bridge, the feet of these rafters rest on the tie beam; the tops of them cannot meet, but are connected by an upper longitudinal beam running horizontally. On this the rafters are all abutted, and act exactly as if each pair had met in the centre, only that the intermediate connecting beam is subjected to a compressive strain, arising from these rafters all pushing on towards the centre, in the same manner as the lower beam is subjected to tensile strain from all the feet of the rafters pushing off from the centre. The upper beam is termed the top chord, the lower beam the bottom chord, and the rafters are called the braces; and one member more is only wanted to make the structure complete—namely, a beam or tie standing vertically to connect the top of the one rafter with the foot of the next adjacent, towards the centre, and in this manner every part of the frame is supported; and there being no cross strains whatever, it is truly astonishing how much such a structure will bear. The last-mentioned beam, from being subject to the tensile strain, is termed the tie, and a great improvement has been effected by the introduction of malleable iron rods in place of timber; by means of this, and of screws and nuts, the whole structure can be brought to a perfect degree of tension, so that every joint and member may bear its due share of the load; and in the case of the shrinkage of the timber, or other derangement, the equilibrium and perfect form of the structure can easily be restored and maintained. By screwing up the ties in this manner, the bridge tends to assume an arched form, rising with a camber in the middle; to prevent this, another member has been introduced, termed the counter-brace, which is a beam of timber, extending from the top of one rafter to the bottom of the next adjacent, from the centre towards the extremities of the bridge. This counter-brace crosses the braces, and resists any change of form which the screwing up of the rods would bring on; and there is this remarkable advantage obtained, that the action of these counter-braces, thus screwed up to a certain degree of tension, prevents the weights of the passing loads from having any effect in straining or deflecting the bridge. Instead of any additional strain on any part, these loads rather relieve the counter-braces from the tension to which they are subjected. No deflection or change of form can occur except what may arise from the mere compression or distension of the parts; and these being all strained end-ways, and there being no cross or oblique action, this effect is absolutely nothing; and the form of the structure and strains on it become in a great measure, if not entirely, independent of the fluctuating traffic. The bridge is already strained to the utmost extent of any passing load, and cannot be affected by it: whence arises a principle of stability and safety well worthy of consideration, particularly in the case of railways. The strength and stiffness of the small model was then shown, and the enormous load which it carried; and the whole of this interesting subject concluded by the exhibition of a much larger model of one of the American bridges. Bridges of so great a span as 200 ft. are common enough in that country, and the model represented one of these. It was exactly 1-10th of the dimensions, being 20 ft. long, and the frames on each side 2 ft. deep, consisting of the top and bottom chord, 1 in. by 2½ in.; the braces in pairs three-quarters of an inch square; the tie rods in pairs one-quarter of an inch in diameter; and the counter-braces, each single, three-quarters of an inch square. One of these frames was placed at each side of the bridge, connected at the bottom by cross beams, on which was laid the planking of the roadway. The whole weight of the bridge was only 113 lbs.; and although 20 ft. span, and of such slender materials, it carried six persons, equal at least to 7 or 8 cwts. standing in the centre, without deflecting more than a quarter of an inch.

Another advantage he also mentioned of these bridges, was the simplicity of construction; the braces and counter-braces were all cut exactly to the same length, and square on the ends; no morticing or jointing of any kind, but resting simply on blocks attached to the top and bottom chords, through which blocks were also passed the tie rods. Nothing could be simpler; and the whole bridge could be taken down, removed to another site, and there put up with facility. It is easy to see, also, that as the malleable iron ties have been substituted for the upright timbers, so may it be for the bottom chord; and the braces and counter-braces could be made of cast-iron in the form of hollow square tubes, which would altogether form an extremely simple and strong girder or bridge. One remark, however, he must make regarding all these bridges or girders of a rectangular form—namely, that though they may be practically convenient in many respects, they are all attended with a sacrifice of material, in so far as they deviate from the principle of the arch. The top chord might be in the form of an arch, starting from the level of the roadway at the abutments, and rising to the original height at the centre. In this way much material would be saved, while the strain on the chord would be greatly less, owing to the curvature; and this form is often used in America, but not combined with the principle of the braces and counter-braces, as it might be. The same remark applies also to the iron tubular bridges, which possess advantages in simplicity and great steadiness; but no doubt the material at the ends is redundant, and the strain in the centre beyond what would occur in the case of the arch. He now begged to conclude these expositions, which had been extended to much greater length than he had anticipated.

*5th March, and the second on the 6th May.

IMPROVEMENTS IN LOCOMOTIVE ENGINES, &C.—Mr. George Remington, of Warkworth, Northumberland, C.E., has obtained a patent for improvements in locomotive engines, and in marine and stationary engines, which are thus described in the *Mechanics' Magazine*:—"These improvements consist—1st, in converting reciprocating rectilineal motion into rotary motion.—2d, in converting rotary motion into reciprocating rectilineal motion.—And, 3d, in a mechanical arrangement for reversing the action of engines.—1. Upon the revolving shaft is fixed, at right angles, a lever, to the other end of which, and on one side, is attached a small rectangular block. On that side of the lever which carries the block is a square metal plate containing two slots, one horizontal and the other vertical, and intersecting each other at right angles in the centre of the plate. The revolving shaft passes through the vertical slot, so that the plate may travel freely up and down over it. The block (which is somewhat longer than the breadth of the vertical slot) is placed in the horizontal slot. Supposing the lever to be upright, slightly deviating from the perpendicular, which is parallel to the vertical slot, and that a downward motion is communicated from a steam-engine to the plate, to the full extent of the vertical slot; the result will be that the block will travel from the centre to the end of the horizontal slot, that the lever will assume a position the reverse of the one in which it was first placed, and that the main shaft will have made one-half of an entire revolution. The dead centre is then overcome by a fly-wheel, and an upward motion given to the plate, whereby the revolution of the main shaft is completed, and the lever brought back to the first position, ready for the second operation.—2. The arrangements for converting rotary motion into reciprocating rectilinear motion are the reverse of those just described. Where the rotary motion is to be communicated to the end of a crank-shaft or crank-pin upon a wheel, the vertical slot may, it is said, be dispensed with, and the horizontal one only used, or a groove may be substituted for the slot.—3. The apparatus for reversing the engine would scarcely be intelligible without drawings.—*Claims:* 1. The application to locomotive, marine, and stationary engines of the mechanical principle (involved in the arrangements 1 and 2) before described, with the exception in the case where a one-slotted or grooved plate is used, and then only when working inside the cylinder.—2d. The apparatus for reversing the engine as described and exemplified in the drawings.

SUBMARINE COMMUNICATION BETWEEN ENGLAND AND IRELAND.—The more speedy transmission of intelligence across the Irish channel, and improved means of communication between the sister islands, will be secured by the determination of the Government, to take advantage of the facilities afforded by the submarine electric telegraph. The Lords Commissioners of the Admiralty have given permission to Charles Blunt, Esq., civil engineer, to effect a communication by laying down his submarine electric telegraph between Holyhead and Dublin. The telegraphic wires will be connected with the lines of railway radiating from the Irish metropolis and with the Chester and Holyhead Railway; and we also understand that convenient positions at both the termini have been chosen and marked out where the wires will terminate. The Admiralty are desirous of furnishing Mr. Blunt with the necessary aid; and for this purpose have authorised Captain Fraser, R.N., the commanding officer of her Majesty's naval establishment and dockyard at Holyhead, not only to permit the former gentlemen immediately to commence his operations, but also to afford every assistance which he may require in the performance of his undertaking. This desirable enterprise will form another link in the great chain of communication between the two countries. By its means space will be almost annihilated, and in a few minutes the most important political intelligence, or the minutest detail of business, will be conveyed between the capitals of England and Ireland. The towns of Liverpool and Manchester would also be benefitted, as the telegraphic communications would be at least 12 hours in advance of the ordinary mails.

RAILWAY BAKERIES.—A Belgian has hit upon a very economical notion. He proposes to attach bakehouses to the stations on the railways where the coke furnaces are placed, and to bake the bread with the lost heat. By placing the red-hot coke to cool in the bakehouses, instead of allowing it to remain in the furnaces, where the heat is altogether wasted, he will bake his bread in 40 minutes without any expense of fuel.

A RAILWAY SOLICITOR'S BILL.—The bill of charges of the late solicitor to one of the southern railway companies contained 10,000 folios, has occupied 12 months in the progress of taxation, and amounted to 240,000*l.*

PAINFUL WOUNDS IN THE LEGS AND BODY CURED AFTER SEVENTEEN YEARS' DURATION BY HOLLOWAY'S OINTMENT AND PILLS.—Extract of a letter from Mr. W. Staples, dated Belgrave-gate, Leicester, November 9, 1845:—"To Professor Holloway.—Sir,—I was an invalid for 17 years, suffering dreadfully with painful ulcers in my legs and different parts of my body. During this period I was attended by several most eminent surgeons, but their remedies failed to do me the least good. I then commenced using your ointment and pills, and by their invaluable medicines alone I am pleased to state that in a short time all the wounds were soundly healed, and I am restored to excellent health."—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

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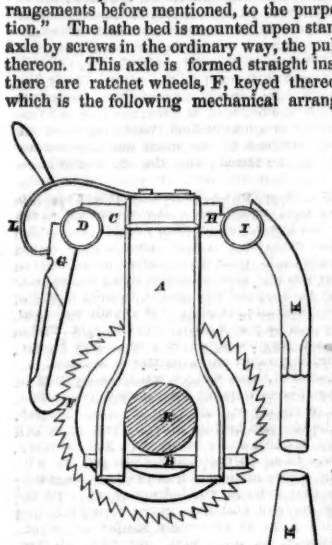
*The first part of this important paper was published in the *Mining Journal* of the

IMPROVEMENTS IN MECHANISM.

[Specification of patent granted to Vincent Price, of Wardour-street, Soho, in the county of Middlesex, machinist, for certain new or improved mechanical arrangements for obtaining and applying motive-power.]

These improvements are thus described by the patentee:—"My invention consists in, and has reference to, certain new or improved mechanical arrangements, hereafter set forth and described, adapted for the purposes of obtaining or communicating motive-power or motion for various purposes, and in applying the same to the said purposes."

In the first place, "the said new or improved mechanical arrangements, for obtaining and applying motive-power, relate to the propelling of wheel-carriages, or vehicles, of those classes called or known as pedomotive and manumotive carriages, the novelty whereof principally consists in so arranging and combining the constituent parts of the mechanism for effectuating the said purpose, that the motion received from the application of the foot to a treddle, or of the hand to a lever, in connection with the mechanism hereafter described, shall impart rotatory motion without the intervention of a crank—thus getting rid of the loss or waste of power to which the crank is subject, from having to overcome null points, which objection is entirely obviated by the mechanism constructed and actuated according to my said invention, as hereinafter set forth and described. Such mechanical arrangements for propelling carriages being well calculated for trucks or carriages used for mining, railway, or other purposes, where tram or railways are employed. The said arrangements may also be adapted to other purposes. As the details of this portion of the improvements are similar to those of the next, and as every practical mechanic will, from the description of the arrangement adopted in the one case, have a clear conception of that used in the other, we proceed at once to the next part, which has relation to the application of the mechanical arrangements before mentioned, to the purposes of forming a new lathe motion." The lathe bed is mounted upon standards, which support the square axle by screws in the ordinary way, the pulley-wheel being securely keyed thereon. This axle is formed straight instead of cranked, as usual, and there are ratchet wheels, F, keyed thereon, in connection with each of which is the following mechanical arrangements:—A, a piece of metal, the lower part of which is formed forked, and such part passes over the axle, E, at which part the axle is formed round, the said forked part being connected to the axle by a pin, B. Into the upper part of the piece, A, at one side thereof, there is securely fixed, by screwing, or otherwise, a jointed piece, C, to which is connected by a pin, D, the upper extremity of a pall, G, the lower extremity whereof is formed with a catch, which takes into the indentations up on the ratchet-wheel, and, at the opposite side of the upper part of the piece, A, there is another and somewhat similar jointed piece, H, to which is connected, by a pin, I, the upper end of a connecting rod, K, the lower extremity whereof is connected to one end of a cross-piece, securely fixed to a treddle, the said treddle being supported by centre screws, in the usual way of forming such connection; L, a hooked spring, securely fixed to the top of the piece, A, for the combined purpose of keeping the pall in contact with the identations in the ratchet wheel, and of keeping the pall out of gear therewith when necessary, as hereafter mentioned. It is to be observed, that the palls of each ratchet-wheel are placed in opposite directions one to the other, in order that motion may be imparted to the lathe-pulley in a backward or forward direction, as the case may be; to effect which one or other of the palls must at all times be out of gear with the ratchet-wheel, by raising such pall until the hooked part of the spring takes into the notch formed in the pall, M; thus it will appear evident that, by imparting motion to the treddle in a downward direction, the pall being connected to the ratchet-wheel will cause rotary motion thereof, and of the pulley-wheel and parts in connection therewith; the upward movement of the treddle being effected by the pressure of a strong spring, the lower part of which is in contact with a plate of metal fixed to the flooring. By this arrangement it will be seen that the objections attending the crank, or other similar contrivance, as hitherto employed in the construction of lathes, are entirely avoided, and the treddle is at all times in a favourable position to be acted upon." A new mode is likewise exhibited, of applying the motive-power of a screw to the purpose of a lathe tool, designated a "driver," and employed for connecting the part or piece to be operated upon to the chuck of a lathe. Under this patent the inventor has also specified other arrangements for applying motive-power to the actuating of certain machinery or apparatus, for effecting various useful purposes, as the cleaning of knives and forks, cleansing of garments, cutting and mincing food for cattle, &c.



This specification likewise sets forth a method of obtaining and applying the motive-power to be derived from the passage of water through tubes inserted in the lower part of a ship, or other the like vessel, and communicating with the water surrounding the said vessel, for and to the purposes of working the ship's pumps, and other useful purposes on ship-board, which are thus set forth. In the lower part of the ship, or vessel, along each side thereof, tubes or pipes are placed, which extend from stem to stern, and communicate with the surrounding water at each end by means of valves, which are acted upon from the deck by a handle attached to the connecting-rods. To each of these pipes, at about the centre of the vessel, a box, or casing, is connected, the bottom of which is open to the pipe; within this casing is a water-wheel, similar to an undershot water-wheel, working upon an axis, having its bearings in recesses on each side of the said box, or casing. The recess nearest to the vessel's side has an orifice in it, provided with a stuffing-box, through which a portion of the axis of the said water-wheel passes to the side of the vessel, where other bearings are fixed in which this portion of the said axis rotates. Suitable wheelwork and gearing convey the motion imparted from the water-wheel to the point desired.

Patent-office and Designs Registry, 310, *Strand*.

IMPROVED LIQUID GLUE.—Mr. Neuber, of Endell-street, Long Acre, has just introduced a new description of glue, which bids fair to become of much utility in the arts. It will not mix with water, is consequently impervious to moisture, and remains quite unaffected in damp situations; it is incombustible, free from the slightest smell, dries quickly after a joint is made with it, and its adhesiveness and tenacity are, under most circumstances, superior to the common glue. It is not only applicable to carpenters, cabinet makers, and every description of woodwork, but effectually unites china, glass, marble, and any other substance, which can by possibility be united after fracture. The deterioration which common glue undergoes by being exposed to the air and dust of the shop, and being continually kept at the boiling point of temperature, is well known, as is also the rapidity and handiness required to form a good joint, particularly in long boards, or pieces of timber. The glue under notice requires only to be poured into a vessel, and laid on with a common brush—the article to be joined first being moderately warmed; and as it can thus be kept in a stopped bottle always ready for use, it remains free from dirt, will keep good for any length of time, and, with care, scarcely a drop need be wasted. We are informed by the inventor, that to carpenters, cabinet makers, and others who use much glue, he could supply it in quantities, of a gallon and upwards, at a price not exceeding the cost of that now in common use.

On Monday, the necessary arrangements having been made with the Great Northern and York and North Midland Railways, there was an excursion trip from Bridlington with the members of the Mechanics' Institution, and the inhabitants of other towns along the route to London, from Hull, Scarborough, and other places, in covered up third-class carriages for 12s. 6d. the trip to and fro, giving each passenger the option of a seven days' stay in the metropolis.

CHESTER AND HOLYHEAD.—Some idea may be formed of the use of this line for farming produce, from the fact that during the last fortnight there went from the Bangor station from Ireland, upwards of 80 trucks full of fat pigs, each truck with 25 pigs, or about 2000 in the whole.

STEAM CARRIAGES ON COMMON ROADS.

REPORT.

The importance of this subject will be seen, when we consider that the turnpike and other roads in the United Kingdom amount to 180,000 miles—are the best carriage roads in the world—that thousands of families gain their livelihood directly or indirectly from them—and that multitudes of towns, villages, inns, mills, factories, &c., are more or less deeply interested in the continuation of the traffic along them.

It has been proved beyond all doubt, that steam carriages on common roads are perfectly practicable, so long as the machinery is in a proper working condition; this will be seen by referring to the evidence of the select committee of the House of Commons in 1831. The report stated—"That steam carriages could ascend hills of considerable inclination with facility and safety—that they were perfectly safe for passengers—and that they would become a more speedy and cheap mode of conveyance than carriages drawn by horses—that, with the slightest exertion, they might be stopped and turned under circumstances where horses were totally unmanageable—that they would not act so injuriously on common roads as the feet of horses—that the substitution of inanimate for animal power on common roads is one of the most important improvements in the means of internal communication ever yet introduced—and that its practicability had been fully established." In Nov., 1833, a committee of civil engineers was appointed to examine into the practicability of running steam carriages long distances. The committee consisted of the following members:—Thomas Telford, president of the Society of Civil Engineers; John Rickman, secretary and commissioner of the Highland Roads and Bridges; C. W. Pasley, Lieut.-Col. commanding Royal Engineers, Chatham; Bryan Donkin, civil engineer; Timothy Bramah, ditto; John Thomas, ditto; Joshua Field, ditto; John Macneil, ditto; Alexander Gordon, ditto; J. Simpson, engineer to the Chelsea Water-Works.

Their report stated—"There can be no doubt that, with a well-constructed engine of greater power, a steam carriage conveyance, between London and Birmingham, at a velocity unattainable by horses, and limited only by safety, might be maintained; and it is our conviction that such a project might be undertaken with great advantage to the public, more particularly if, as might obviously be the case, without interfering with the general use of the road, a portion of it were to be prepared and kept in a state most suitable for travelling in locomotive steam carriages."

Thus, it will be seen, from the Parliamentary evidence, and from the report of the civil engineers, that there is no doubt of surmounting every difficulty, as to its practicability for every description of traffic. The only point left to be decided was the wear and tear and expense of keeping them in a good working condition; and this point alone has hitherto caused their failure. Sir C. James Anderson, Bart., in his numerous experiments, clearly saw the evil; and after more than 30 years' study and indomitable perseverance, and at an outlay of more than 60,000*l.*, has succeeded in perfecting a steam carriage to run on common roads, which will, I believe, remove every difficulty that has hitherto been met with.

The following are the leading features of his improvements:—

1. Condensing the steam, and using distilled water for the boiler,
2. Working the steam expansively to its utmost extent, that the greatest amount of power may be obtained from a given quantity of steam.
3. Preventing all loss of heat from radiation, by clothing the cylinders, steam-pipes, and boilers, with non-conducting substances.
4. In suspending the carriages and machinery on springs, that any shocks received by the periphery of the wheels, shall not be communicated to the superincumbent weight.
5. In applying elastic wheels to prevent shocks, &c.
6. In a mode of working the engines at their maximum speed, and reducing, or increasing, the speed of the carriage, according to the resistance on the road.
7. For preventing the slipping of the driving band, and all lateral friction from the journal of the wheels.
8. Using common coal as fuel, and consuming the smoke.
9. Reducing the expense of working, by not requiring any water stations along the road.

1st. Condensing the steam and using distilled water in the boiler.—Here we have an effectual preventative of that deposit, which acts so injuriously in all boilers, and more particularly in the small water spaces of locomotive boilers. They will be exceedingly clean. In consequence of such cleanliness, the metallic plates of which they are made will be kept comparatively cool, for the heat is as instantly abstracted from them by the water, as it is imparted to them by the fire. The boilers are never liable to be burned, or be injured by the water becoming, by accident or carelessness, too low in them, for every cubic foot of water, which is converted into steam, is, by condensation, reconverted into precisely the same quantity of water, and returned to the boiler, and as there is no danger of the valves of the feed-pumps becoming choked by extraneous matter, the water in the boiler must always be kept at exactly the same height.

The steam is condensed by currents of cold air: this is no longer problematical—it has been fully proved by Mr. Craddock, of Birmingham, in his universal condensing steam-engine; he has had condensers at work for several years on this principle, and which have given entire satisfaction. They are light in weight, and durable, and every objection to their use has been overcome. The weight of the condenser will not be more than the weight of water required to be taken hitherto for feeding the boiler. The power of the steam will be increased fully one-third by condensation, as a vacuum of 9 lbs. per inch may be easily obtained; but, apart from this, the grand object will be accomplished by means of the system of keeping the boiler supplied with pure distilled water, compared to which anything here set down on the increase of power is as nothing; a revolution both in form and construction will be superinduced, not heretofore practicable, on account of the impurity of the water. Hence all the advantages derivable from working expansively to the full extent, are placed within our reach, and this combined with a large heating surface contained in a boiler of less weight, and occupying less space, together with a slow rate of combustion, and a proper application of the expansive principle, in a suitably adapted engine, the consumption of fuel would not exceed 4 lbs. of coal per horse-power per hour.

By doing away with the necessity of having water stations for supplying the boiler, the following will be saved in 100 miles of road:—10 pumps and reservoirs for water stations, at 40*l.* each = 400*l.*; rent of 10 water stations, at 10*l.* each = 100*l.* per annum, or 4*l.* per mile in first cost, and 1*l.* per mile yearly expense. This will enable the carriage to travel in any direction, and over any roads, without making any previous arrangements for supplies of water (which have hitherto been required), and give the same facility of travelling, in any direction, with a steam locomotive, as with a common horse coach.

2d. Working the steam expansively.—It has been proved, by repeated experiments, that a given quantity of steam will give 75 per cent. more power worked expansively—consequently, only one-fourth the quantity of steam will be required for the same amount of work; and as fuel is required in proportion to the quantity of steam, the fuel will be reduced in the same proportion. But the saving in fuel is not the only advantage which will result from an extended application of the expansive principle, as the condenser and boiler need not be more than one-fourth the size and weight of a non-expansive engine; and if the weight of the present boiler is not objectionable, then a slower rate of combustion may be used, which will still further economise the fuel. The engine best adapted for working out this principle appears to me to be Mr. Sims's, of Redruth, in Cornwall, combined cylinders—it being the most simple and effectual mode of working the steam, as long as it can be made available, and for carrying the expansive principle to its fullest extent. This engine makes a double-power engine with single-power steam, works with the greatest regularity of motion, and, by means of the bottom piston having an available area of three or more times that of the top piston, gives a power below, equal to the power above, and with steam, which is now thrown away. Mr. Sims has more than 60 of them at work, and, in every case, the quantity of fuel averages from 3 to 4 lbs. of coal per horse-power per mile.

3d. Preventing loss of heat from radiation.—Very little regard has been hitherto paid to prevent radiation of heat. This is a most important matter, because heat lost is, in fact, power lost. The importance of this will be seen, when, by covering up the cylinders, steam pipes, and boilers, in the Cornish pumping-engine, and preventing the least possible loss from this cause, their duty has been accurately found to have increased full 50 per cent.

In all the steam-carriages hitherto brought into practical working, the cylinders and steam-pipes have been exposed to currents of cold air, carrying off more heat than would have been required, under proper arrangements, to generate the steam. In some of the steam-carriages, the pressure of steam in the boiler has been 125 lbs. per inch; when in the cylinders, the pressure has not been greater than 45 lbs. on the inch—the pressure being reduced two-thirds by loss of heat and wire-drawing the steam.

4th. In suspending the carriage and machinery on springs, that any shocks received by the periphery of the wheels are not communicated to the superincumbent weight.—In all former steam-carriages for common roads, one great cause of failure has been *imperfect suspension*; for, however rude and extravagant the plans might have been, there is no doubt the machinery would have worked, if *stationary*, cheaper than horses; and as competing with horses is the standard of success or failure, so any steam-carriage that is cheaper than horse-power in first cost, wear and tear, and maintenance, must be successful; so, on the contrary, if more expensive, it will be a failure. It has been fully proved by all those who have had steam-carriages running, that their first cost and working expenses are less, by one-half, than that of horses, but that the wear and tear is so great, as to make them much more costly; for, in every case where the road has been covered with a thick coating of gravel, they have been driven off in consequence of *breakages*, &c.; and always after a few weeks' work, even on the best roads, the repairs have been so great, as to cause them to be discontinued.

The question of suspension has not yet been sufficiently considered or understood. The springs hitherto adopted act only in a vertical direction, in which direction the greatest amount of the momentum of concussion does not pass, but in a direction more inclining towards the lines of progress as the wheel revolves.

The wheels of carriages are also subject to considerable concussion in a lateral direction, lengthways of the axis. A wheel, under such concussion, transmits the concussion almost unbroken to the carriage and machinery.

The springs should be arranged in such manner, that while they should possess sufficient strength, fitly disposed in their several parts, to resist breakage, unsteadiness, or any permanent alteration from the ordinary shocks, or violence, to which they might be subjected, should yet possess the property of elasticity to such a degree, as to intercept and materially diminish the concussion caused by the wheels rolling over obstacles during their revolution—and thus either prevent the concussion from extending its effects to the carriage and machinery, or lessen it so much, that the effects might be comparatively innocuous. The difficulty of suspending the machinery in any way that will accomplish this object, is, and has always been, the master difficulty of the case; and unless, in future steam carriages, the springs effectually and fully detach the periphery of the wheels from the carriage and its load, that the jolts received by them shall not be communicated to the superincumbent weight, future experiments must share the fate of the past. But there can be no reason that this difficulty should not be removed. Vehicles are made to carry glass, china, furniture, &c., over the roughest road at a high speed, without any danger of breakage; and surely steam machinery is not more delicate than china or glass. The cause is, that proper arrangements have not been applied. The power has been applied in such a manner to the driving-wheels, that the springs could not act to any beneficial extent to prevent concussions. The springs have been very strong and heavy, and not sufficiently elastic for the purpose. Sir James, in his arrangements, has fully met this difficulty, which will enable the carriage to pass over the roughest road, with very little more wear and tear than if it had been stationary.

5th. The wheels hitherto have been made rigid and unyielding, conveying all the shocks direct from the periphery of the wheels unbroken to the axles. Sir James constructs his wheels in such manner, that when travelling over a smooth surface, they are unyielding; but when passing over obstacles, on meeting with any concussion, they become elastic and yielding, thus preventing the full effect of the concussion from being communicated beyond the periphery of the wheel.

The load upon a carriage, in passing over an obstacle, resists the power which draws it—not only by its weight, but by its *vis inertiæ*. After a carriage has been once set in motion upon a smooth road, with any given velocity, its motion, so long as that velocity is continued, is neither retarded nor promoted by its *vis inertiæ*; but whenever it passes over any height, not only the weight of the carriage must be lifted up, but the *vis inertiæ* of that weight must be overcome in a new direction; and so much velocity must be communicated to it in that new direction, as will enable it to rise to the height of the obstacle, whilst it passes over its base.

Whatever permits the weight to rise gradually over an obstable, without obstructing the velocity of the carriage, will tend to facilitate its draught; and the application of springs has this effect to a considerable degree, and in experiments which have been made, it took 3¼ times more power to draw a carriage without springs over obstacles than it did with springs. This remarkable difference points out the great advantage of springs on rough roads—an advantage which might be obtained for steam-carriages, as well as for other carriages, by a judicious application of the means, and which Sir James has accomplished.

6th. Working the engines at their maximum speed, and reducing or increasing the speed of the carriage, according to the resistances on the road.

The power has hitherto been applied by cranked axles, and connected direct to horizontal cylinders by connecting rods, as adopted by Mr. Gurney, or by spur-wheels or pitch chains, by Mr. Russell and Mr. Hancock. All of these plans prevented the action of the springs to any useful extent, left the machinery liable to injury, and the crank axles had to be very heavy, in consequence of the double strain thrown on them.

Sir James applies the power direct to the periphery of the driving-wheels (by which means all the strain is taken off the axles). A belt of gutta percha, leather, or wire-rope, passes round a drum worked by the engines, and around a drum inside the wheel, a long radius bar keeping the centres of the drums equidistant. In order to obviate the necessity of using the steam at different pressures, or working it at different rates of expansion, as it hitherto has been the custom in steam-carriages, arrangements are made that the engines shall work with a given pressure of steam and expansion, and thus the maximum power be secured; any alteration from this, required from the state of the road, and other causes of resistance, to be obtained by reducing or augmenting the speed of the carriage. While the engines are always kept at their maximum effective speed, a beautiful contrivance is introduced for preventing the possibility of the band from slipping, and preventing all lateral friction on the axles of the drums from the strain of the strap. Thus the springs may have full play, without in any manner preventing the equable performance of the engine.

8th. Plan for burning common coal, and consuming the smoke.—The coals are thrown on the fire by a self-acting apparatus, without requiring any attention from the stoker; this will prevent the boiler being cooled each time fuel is thrown on the fire, when the door is opened. One bushel of coal is calculated to generate as much steam as two bushels of coke, and as coal may be obtained in any part of the country, no provision whatever will have to be made for travelling in any direction.

After maturely considering the plans of Sir James, I can say confidently that every objection is overcome and every difficulty met; and that steam will now successfully compete with horses on the common roads, in any situation, or under any circumstances, and will effect a saving above 50 per cent. in working, with double the average speed; and if the simple and ingenious plan of *constructing timber tracks*, as suggested by Mr. Thomas Motley, were adopted, it would still further reduce the expenses one-half. And I have no doubt that, in consequence of the great original cost of locomotive railways, the public could be conveyed at less than one-fourth of the charges at present made on the latter. A person could be conveyed a given distance for 2s. 6d., affording a larger profit than can be effected for 10s. on an iron locomotive railway, which, I feel confident, may be demonstrated beyond a doubt.

For high speeds, the atmospheric tube with iron rails must supersede every other system; but, at low speeds, steam on common roads, with wooden tracks, will be the cheapest. Thus, if both systems are adopted, the public will be fully accommodated; those to whom the economy of time is an object, might avail themselves of the iron road—whilst those who may travel for pleasure, or to whom the economy of money is an object, may avail themselves of the common road system. I, therefore, cannot but think that parties residing on the public roads—such as farmers, innkeepers, gentlemen, and railway proprietors (as feeders to their lines), will be anxious to promote the success of Sir James Anderson's steam carriage, by incurring a small risk in taking shares in the projected company now in the course of formation.

T. CLARKE, C.E.

RAILWAY COMMUNICATION BETWEEN THE GUARD AND ENGINE-DRIVER.—On Wednesday last we had an opportunity of examining, at the Wolverhampton station, several new railway carriages, intended for the Shrewsbury and Birmingham line, to which was attached a simple and ingenious apparatus for speedy communication from the guard of the train to the driver. This apparatus consists of a gutta percha tube, of about half an inch bore, which may be fixed under the carriage-frame, or along the side of the roof of each carriage in the train; and at each end is attached a vulcanised India-rubber tube of the same diameter, and about 2 feet in length, which hangs down at the end of each carriage when not in use; but when the carriages are connected the tube is joined by a similar joint to those used in a shot-belt. The connection is but the work of an instant, and the telegraph tube may be attached by the same porter, and at the same time he couples the carriages together. In the passengers' luggage-van, at the end of each side, is a rostrum for the guard, protected from the weather, and in which are two plate-glass windows, so as to enable him to see over all the carriages in the train without leaving his seat. The end of the telegraph tube is carried near to the guard's seat, and a mouth-piece attached; while, at the other end, on the tender, is a shrill whistle, and the guard, by the mere action of the breath on the tube, is enabled to give the requisite signals for increasing or decreasing speed, stopping, &c., and which cannot fail to attract the attention of the engine-driver. The invention is the joint discovery of Mr. F. Whishaw, C.E., and Mr. Kinder, of the Broomsgrove Railway-Carriage Company, and from its simple and economical construction, as well as its efficiency, it promises to become generally adopted by railway companies. We have, in fact, been informed that it has been submitted to some of the official authorities on the Midland Railway, and they, being convinced of the utility of the plan, have ordered it to be applied to the carriages on their line.—*Staffordshire Courier*.

IMPORTANT TO RAILWAY COMPANIES AND THE PUBLIC.—A discovery has just been made by Messrs. W. D. Wells and J. Broadfield, surveyors, of Kidderminster. It consists of a new and successful mode of communication, to be attached to every description of railway carriage, so that in case any one of them should break away from the rest on the line, it would immediately communicate the fact to the engine-driver, by blowing the steam-whistle on the engine. This can also be done by the guard at any moment. In principle it is self-acting, and is entirely removed from the control of the passengers: simple, efficacious, and cheap in its application and construction, it can be attached with great facility and saving of time, and in case of breakage can be restored to its proper action again by the guard in one moment, and the simple cost of a few pence. The above-named parties are in possession of a number of model carriages, showing the principle of action throughout.—*Worcester Chronicle*.

OPENING OF THE SAMBRE AND MEUSE RAILWAY FROM MARCHIENNE TO WALCOURT.—The opening of this section of the line took place on Thursday last. The total extent of railway thus opened up from the Government line at Marchienne to Walcourt, with branches to Morialmé and Laneffe, is 25 miles, through the richest mineral districts of Belgium. The Belgian Government having certified its fitness for opening, after inspection by the Minister of Public Works, the traffic in passengers, and the staple products of the districts, such as coal, coke, and iron, which are very considerable, commenced on Saturday. Upwards of 3000 tons of zinc ore, a mineral extensively worked at Samart and Sautour, near Philippeville, were ready for conveyance to the banks of the Sambre for smelting. There has been an excess in the estimated cost of this first section of 73,329*l.*, owing to the earthworks having exceeded the original calculation, and which is attributed by the engineer to the hard nature of the rocks that had to be encountered.

GRAND JUNCTION CANAL.—A meeting of this company was held at the Whittington Club, Strand, on Tuesday last, at which a dividend at the rate of 5 per cent. per annum for the last six months was declared. This dividend would amount to 28,637*l.* 10s., to make up which sum it would be necessary to take 563*l.* from the rest. The company are now carriers, and collect and deliver goods, and the report stated that this business, which had been commenced in December last, had increased from 86*l.*, the amount of receipts during the first month of the experiment, up to 507*l.*, which was the amount for September, and that it was consequently expected speedily to become remunerative. The powers of the company in this respect had not yet, to any great extent, been applied to the coal trade and other heavy traffic, but arrangements are in progress for that purpose, and the directors "look forward with patience, but confidence, to a more just appreciation of canal property," from the feeling now growing up that "in the inland conveyance of goods, cheapness and regularity, and safety from damage (which are the peculiar characteristics of water carriage properly conducted), are of much more importance than great speed." From the financial details contained in the report, it appeared that the capital raised originally was 1,785,730*l.*, and that, by paying off 640,230*l.*, the capital account was closed in 1818 at 1,145,500*l.* "The company," it is added, "has no debt, and is under no guarantees;" and, in addition to the navigation and works, it possesses a rest, principally invested in real estate, valued at 240,000*l.*, and producing a clear rental of 7144*l.* The company is also secured by Act of Parliament in the payment of water-rent, yielding 2000*l.* annually.

NEW PATENTS.

J. Davies and G. Davies, Albion Iron Foundry, Staffordshire, iron founders, for improvements in steam-engines.

R. Burn, Edinburgh, for an improved roller gin, used in separating the seed from the cotton.

F. H. Greenstreet, Liverpool, engineer, for certain improvements in hydraulic engines.

J. Armstrong, Edinburgh, brass founder, for improvements in constructing water-closets.

G. Armstrong, Esq., Newcastle-upon-Tyne, for certain improvements in steam-engines.

F. C. Bakewell, Hampstead-road, gent., for improvements in making communications from one place to another by electricity.

W. Young, of the firm of H. Bannerman and Sons, Manchester, merchants, for certain improvements in machinery or apparatus for winding, balling, or spooling thread, yarn, or other fibrous materials.

J. Ferrabee and Son, Stroud, Gloucestershire, knife, with guard, for cutting vegetables and other substances.

R. N. Cellins, Oxford-court, Cannon-street, druggist, for certain improved compounds to be used for the prevention of injury to health under certain circumstances.

J. Taylor, gent., Furnival's-inn, for improvements in propelling ships and other vessels.

J. H. Porter, Adelaide-place, London Bridge, engineer, for an improved mode of applying corrugated iron in the formation of fire-proof floors, roofs, and other like structures.

J. Duley, Northampton, iron founder, for certain improvements in the construction and arrangement of stoves for cooking and other purposes.

T. Drayton, Regent-street, practical chemist, for improvements in silvering glass and other surfaces.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

W. Tortoise, John-street, Clerkenwell, paper cutting slide.
John Gilby, Chelmsford, reins for driving or riding.
T. and W. Roberson, Ardrossan, pentagraphic delineator.
Clarke and Timmins, Birmingham, music stool, screw tube, and box.
H. Brown, Walworth, a bath-cock.
T. Evans, Southampton-street, Strand, expanding shirt collar.
F. Allen, Birmingham, brooch fastening.
Jarrold and Sons, St. Paul's Churchyard, London, juvenile artists' drawing table.
C. Rowley, Birmingham, ticket holder.
E. Slyn and W. Green, Wolverhampton, cabin door lock.
Capt. H. M. Denham, R.N., Senior United Service Club, Pall Mall, tiller.
J. Faulding, Robert-street, Hampstead-road, apparatus for applying steam and vapour heat to parts of the human body.
J. Hayes, Elton, Huntingdonshire, pedo-manumotive.
T. Barr, Glasgow, duplex hook for printing yarn in the hank.
J. Gedge, Wellington-street, Strand, safety hammer for locks of percussion fire-arms.
H. Smith and T. W. Ashby, Stamford, agricultural cart.—*Mechanics' Magazine*.

The Compendium of British Mining.

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REVISED, CORRECTED, AND ENLARGED FOR THE "MINING JOURNAL,"
BY J. Y. WATSON, ESQ., F.G.S.

GWENNAP DISTRICT.

THE GREAT CONSOLIDATED COPPER MINES consist of Carharrack, West Wheal Virgin, Wheal Virgin, and Wheal Fortune, and are the largest in Cornwall, the workings extending for 55,000 fms., or 63 miles underground, and they have made a profit, under different proprietors, of upwards of 700,000*l.* Previous to consolidation, they returned 17,000 tons of ore per annum, and yielded more than 300,000*l.* profit, and Wheal Virgin, now a part of these mines, in July, 1757, produced in one fortnight ores, which sold for 5700*l.*, and in three weeks and two days, as much as sold for 9600*l.*, the cost of raising the former being only 100*l.*, and that of the latter a trifle more, in proportion to the quantity. In 1819 a company was formed to work these mines, under the management of Mr. John Taylor, F.R.S., and from that time to the expiration of the lease in 1840, a profit was made of 500,000*l.*, besides laying out nearly 100,000*l.* in putting to work the United Mines. During the last four or five years of Mr. Taylor's management, finding that he would not be able to obtain a renewal of the lease, enormous quantities of ore were taken from the mines, and poured into the market. In the 12 months, ending June, 1837, the ores raised were 19,210 tons, yielding 183,024*l.* In 1838, 19,459 tons, yielding 126,211*l.* 12s., and in the last 12 months of Mr. Taylor's management, ending June, 1840, 17,823 tons, yielding 100,279*l.* 3s. 6d. At this time (1840) the mines, machinery, and plant, were sold to the Messrs. Williams, of Scorrier, and present company; the purchase-money being, we believe, 100,000*l.* These gentlemen obtained a new lease from 1st Jan., 1840, for 21 years, at 1-24th dues, the lords being Lord Clifford, Lord Clinton, H. P. Andrew, Esq., the executors of Richard Oakeley, Esq., the trustees of the Blencoe family, Messrs. Williams, and Richard Harvey, Esq. From 1840 to end of June, 1848, the ores returned by this company have been 83,660 tons, yielding 490,543*l.* 1s.; but, owing to the heavy expenses attending the works, and the low price of copper, out of this large sum returned, only 32,000*l.* have been divided as profit among the shareholders. The machinery, valued at 50,000*l.*, consists of eight large steam-engines, and nearly 30 small ones; the mines are upwards of 300 fms. deep, employ 1100 persons, and cost 3500*l.* a month to work. The number of shares is 100, upon which 1000*l.* per share have been paid by present proprietary. Management under a Cornish committee, the principal underground agent being Capt. John Richards.

THE UNITED COPPER MINES, also in Gwennap, were put to work by Mr. Taylor, when managing the Consols, and at an expense to the latter mines of 100,000*l.* When the Consols were sold to the Messrs. Williams, the United were retained by Mr. Taylor's party. The mines consist of Poldory, Cupboard, and Ale and Cakes, which many years since made a profit of 300,000*l.*, then fell into decay, and caused a loss eventually of 50,000*l.* After a time they were again worked at a loss of 30,000*l.*, and then were taken up by the present party. Previous to 1841 the annual returns made were not large; but, from June, 1841, to June, 1848, the mines have returned 85,711 tons, yielding in money 435,549*l.*, out of which 48,000*l.* have been divided as profit. In the present company there are 100 shares, and the mines held on lease for 21 years, at 1-24 dues, the lords being Lord Clifford, Lord Clinton, the Rev. Hender Molesworth (St. Aubyn), Messrs. J. Williams, Jun., and Brothers, Richard Harvey, Esq., Lady Miller, and the Rev. James Blencoe. The number of persons employed, 1300; monthly working cost, 3500*l.*; monthly returns about 1000 tons, which yield a trifling profit; manager at the mines, William Francis, Esq., of Whitehall, Truro.

[To be continued in next week's Mining Journal.]

Mining Correspondence.

ENGLISH MINES.

ANTIMONY AND SILVER-LEAD.—Capt. C. Williams (Dec. 5) reports—We are still driving in the Marlborough adit, the ground is getting easier; we have opened a few more pits on Wheal Sarah lode, which is most promising, a sample of gossan from which I send you. I have no doubt of large quantities of ore being obtained from this lode at a greater depth, from its promising appearances at present.

ASHBURTON UNITED.—Capt. J. Kernick (December 4) reports—The copper lode, in the 14 fm. level, south of Hobson's, is being driven on westwardly by four men, at 4*l.* per fm.; the lode is 3 to 4 ft. wide, of which 5 inches is a branch of grey copper ore, assaying 25 per cent. The two men driving north at Parry's, in the 35 fm. level, have cut the north lode, which is set on tribute to four men; the stuff breaking is coarse, but it contains tin of good quality. I have taken the two men from this cross-cut to drive west from Parry's, 35 fm level, towards Murray's shaft, as the pitches in the back of this level are looking favourable. Since the last report we have cut a branch of tin in the back of Murray's, 25 fm. level, a few fathoms west of the shaft, and with a considerable extent of whole ground above. In Caunter's pitch the lode has been cut over the heave, and is now worked to advantage from the back of the adit. From the increased number of our tributers, the whim drawers have had much difficulty to keep the levels clear, and as we have every prospect of a further and considerable increase, I beg to suggest that the iron wheel now idle should be fixed between Parry's and Murray's shafts, for the purpose of drawing from Parry's, Hobson's, and the Brothers' shafts, and stamping tin ores, when not required for drawing. This arrangement would save considerable expense in whim drawing, and enable us to work the mine to great advantage—it would cost about 40*l.*

BARRISTOWN.—Captain T. Angove (Dec. 1) reports—The ground in the 27 fm. level cross-cut south is very much broken and irregular, looking very unpromising for the lode: I think we should suspend this end for the present, and sink a shaft in the bottom of the 16 fm. level, for the purpose of exploring the lode in depth. In the 16 fm. level end east the lode is over 2 feet wide composed of white iron, blende, and good stones of lead, looking decidedly better. In the adit end east the lode is large, composed principally of gossan, producing half-a-ton of lead per fm. The winze in the bottom of the adit level, east of cross-course, is producing about 1 ton of lead per fm. We have about 22 tons of lead broken.

BEDFORD UNITED.—Capt. James Phillips (Dec. 6) reports—At Wheal Marquis, the engine-shaft is about 11 fms. 3 ft. under the 90 fm. level. In the 90 fm. level east we have the capels from 8 to 10 ft. wide, about 2 ft. of the lode will produce good work; the men have been set to drive by the side of the lode. We continue to drive by the side of the lode in the 80 fm. level east. The lode in the 70 fm. level east is about 2 ft. wide, producing good stones of ore. We sampled at Morwelham, on Friday last, October ores, computed 104 tons (21 cwts.)

CALLINGTON.—Capt. J. T. Phillips (Dec. 4) reports—An improvement has taken place in the 125 fm. level, north of Johnson's engine-shaft; the ground is soft, and congenial for lead; the lode is from 1 ft. to 18 in. wide, and producing good work for about 2 ft. high from the bottom of the end. In the south end the lode is 15 in. wide, intermixed with silver-lead ores. In the 112 north the lode has not been taken down; we are now in the elvans, which are very congenial; in the south end we have not seen the lode since we cut through the slide. In the 100 north we have not yet got the lode. In the 90 north we are opening tribute ground. At the north mine, in the 112 cross-cut, the ground is rather hard; we have commenced cutting top plat below this level. In the 100 fm. level south the lode is small, producing silver-lead ores. In the 90 fm. level south the lode has not been taken down; in the 90 fm. level east the lode is rather small, composed of peach, mundic, spar, and spots of copper ore. In the 80 fm. level, east of the great cross-course, the lode is large, with spots of copper ore. In the 70 fm. level the lode is small and unproductive, the ground is favourable for driving; in the stopes, in the back of this level, the lode will produce 5 tons of ore to the fm. In the winze, sinking below the 50, the lode has not been taken down; in the stopes, in the back of this level, the lode continues much the same, yielding 2 tons of ore to the fm. At Kelly Bray, the shaftmen are preparing for fixing drawing-lift. In the 20 fm. level, in the east end, the lode is 15 in. wide, intermixed with copper ore.

DEAN PRIOR AND BUCKFASTLEIGH.—Capt. H. Choake (Dec. 6) reports—In cross-cutting through the lode, in the 40 fm. level, no improvement has taken place during the last few days; the lode is very hard, so that we cannot make that progress we wish to do; but in order to cut through the lode, and to prove it to that level with all possible speed, the men are working up to a late hour on Saturday nights, and also commence again after 12 o'clock Sunday nights—so that no time is lost, as to carrying the work into effect. We have driven through the lode nearly 8 feet, but have not discovered the south or hanging wall—the present price for driving is 15*l.* per fm.

DEVON AND COURTENAY.—Capt. N. Seccombe (Dec. 5) reports—In the end, driving west, in the 40 fm level, on the gossan lode, the ground is more favourable for driving than last report, and a good stream of water is issuing from the lode. The ground in the cross-cut, driving south, to intersect the south lode in this level, is without any alteration since my last report. In the end, driving east, in the 50 fm. level, on the south lode, the lode is 2½ ft. wide, composed of capel, spar, mundic, and spots of ore.

EAST ALVENNEY.—This very promising mine, which was most imprudently stopped during the height of the pressure in the money market, on account of a very trifling liability, has now resumed her workings, under the certainty of immediate returns. The machinery was in complete working order; and it being judged that the tin lying at surface would pay for the erection of stamps, whilst the lode would set on tribute without further outlay, a contract was entered into for the immediate completion of the stamps, by Mr. John Burnett, of South Petherwin, one of the adventurers, and the mine resumed her workings.—Captain Spargo, who is the managing agent, writes as follows:—Nov. 6th.—We have pitched to work, stoping the tin each side of the shaft, but I think the tribute is high. I am certain it is, if the tin holds as at present—in fact, it is a good pitch at 5s. in 20s.; it was set in my absence at 8s. Mr. Burnett is going on with the stamps.——*Nov.* 18.—I am happy to inform you, that they are breaking excellent work—in fact, it is better than ever I saw it before; they have cut a most splendid floor of tin.——*Nov.* 20.—I have been again to Alvenny, and am glad to inform you the mine was never looking so well as at present. The tributers are stoping east of the shaft; they are breaking excellent work in the place we thought poor. The lode is also producing large stones of blue fluor-spar, or can. They have also opened more on the south lode, which is splendid indeed. They are getting on satisfactorily with the stamps.——From the foregoing it is evident that, but for the alarm which prevailed in the mining districts, causing, in this and in many other instances, unnecessary pressure upon adventurers, during an unusual scarcity of cash, this mine would have paid costs immediately, as also immediate profits to pay off liabilities, and would have been long since making dividends; all of which she must shortly do, if the lode holds as at present, and there is every indication of improvement.

EAST CROWNDALE.—Capt. S. Paull (Dec. 2) reports—The north lode is not as yet cut in the cross-cut, north in the 17 fm. level from Diamond's shaft; the ground is changed much for the better, and is a clear blue killas. The ground in the cross-cut south is still very hard, and much mixed with spar, but, from the appearance of the ground, I hope a change for the better is near at hand. The lode in the adit level, driving west on the course of Thomas's lode, is improving, and, from its general character, I should think it is likely to continue to do so; the part we are carrying is 14 ft. wide, composed of peach, spar, mundic, prian, and tin, worth from 35*l.* to 40*l.* per fm.; The stopes in the back are not so good, the lode being much mixed with killas; this being a thing usual with this lode, it may soon change for the better; it is at present worth about 20*l.* per fm. Our engine, stamps, &c., are all in good working condition.

GOGINAN.—Capt. Matthew Francis (Dec. 4) reports—The setting-list and estimates for December month, was held on Saturday last, the result of which was the following:—say, 130 tons, at 12*l.*, 1560*l.*—men's cost, 500*l.*; merchants' bills, 80*l.*; royalty, 160*l.*—740*l.*; leaving profit, 820*l.* To those who are unacquainted with mining, it is necessary to state, that the estimates are formed before the work is accomplished, at the commencement of the month; at such a time it is impossible to forsee the wants that will be interspersed in it; they are calculated upon data, supposing that every man will do good labour, and without any allowance for hindrance and accidents. Except in favourable months, it will be evident that the calculations will not be quite borne out. In some months, by breakages and other interruptions, the variations will be very great—generally they will be found inconsiderable, but at all mines such an approximation to the facts as can be made by persons practically acquainted with the subject is of value, inasmuch as it shows what the mine is capable of doing under favourable circumstances. The engine-shaft has just been sunk through the lode, which inclines southward in deepening, so that in future we shall have to cross-cut in that direction in the different levels we arrive at below. We expect, from this circumstance, to be able to sink the shaft faster than we have yet been able to do, as we shall not require the use of pumps to draw the water, until the distance between the different levels is completed. The 28 fm. level (8 fms. east of the engine-shaft) is in a course of ore, worth 40*l.* a fm. for the size of the end. The 25 west (20 fms. west of the shaft) yields about 10*l.* worth of ore to the fm. The 15 east (50 fms. east of the shaft) is in an orey lode, but not a rich one; but, from the old workings, there is reason to expect good ore ground immediately before the level.

HOLMBUSH.—Capt. W. Lean (December 5) reports—We shall resume sinking the diagonal shaft next Thursday. In the 132 fm. level, west of ditto, we have intersected the great cross-course, and to make all speed in getting through it, we have increased the number of men from four to six; we have also set a cross-cut to drive north from the 132 fm. level plat, to intersect the north part of the lode, which we had previously thought, from its dip, would have passed through the shaft at or about this level. The lode in the 120 fm. level, east of Hitchins's shaft, on the north part, is 10 in. wide, composed of spar, mundic, and stones of copper ore; the lode in the 120 fm. level south is 4 ft. wide, producing stones of lead; the lode in the stopes, in the back of this level, is at present poor. The 110 fm. level south, together with the stopes in the back of this level, is set at 9s. in the 1*l.* on the value of the lead. The 100 fm. level south is for the present suspended, and the men removed to the 132 fm. level north; the Flap-jack lode, in the same level east, is 20 in. wide, composed of spar, mundic, and stones of copper ore, ground still favourable. We sampled on Friday last, one parcel of copper ores, computed 30 tons.

KIRKCUDBRIGHTSHIRE.—The agent (Dec. 2) reports—The lode in the 50 end, east of Keith's, is about 2 ft. wide, the ground less hard for breaking, with a stone of lead in the bottom part of the end. The winze in the bottom of the 40, west of this shaft, has a lode 3 ft. wide, not quite so good as when last reported; the bunch seems to be dipping fast westward. The lode in the winze in the bottom of the 30, east of Stewart's, is 3 ft. wide, yielding about 7 cwts. of lead per fm.; the lode in the rise, in the back of this level, is 4 ft. wide, with lumps of lead scattered through the stone, yielding 3 or 4 cwts. of lead per fm. The lode in the 20 end, east of Stewart's, is 3 ft. wide, with small branches of lead in places. We shall put these men to sink next week, in order to hole the rise. The water is in Stewart's to the 50 fm. level, owing to our removing the flat-rods, &c., to the new wheel, which works well. The vessel has just arrived for the lead, which we hope to put on board on Monday

LEWIS.—Captain S. S. Noell (Dec. 2) reports—The lode in the 70 west, on south branch, is 1 ft. wide, with some good stones of tin; the lode in the 70 east is 18 in. wide, yielding some tin, and very promising. The lode in the 60 east, on south branch, is 1 ft. wide, worth 9*l.* per fm.; the lode in the 60 west, on south branch, is 1 ft. wide, worth 7*l.* 10s. per fm.; the lode in the winze, sinking under the 60, is at present small, but producing rich quality tinstuff. The lode in the 50 east, on south branch, is 18 in. wide, worth 5*l.* per fm.; the lode in the 50 east, on Rolph's branch, is 1 ft. wide, producing good quality tinstuff. The lode in the 40 east, on south branch, is 9 in. wide, opening good tribute ground; the lode in the 40, east of Praed's shaft, is 18 in. wide, worth 5*l.* per fm. In the 30 west, on south branch, the lode is 10 in. wide, worth 2*l.* per fm. I think our tribute ground is much improved since last reported.

LLAWR-CWM-BACH.—Captain Matthew Francis (Dec. 4) reports—The lode yields some very good ore in the stope, in the back of the adit level. The engine-shaft is not ready yet to receive the machinery; but is preparing for it. We shall, doubtless, experience delay in this work during the winter; and I think it will be better for us to proceed slowly with the necessary preparations until the spring. There is about 30*l.* worth of ore ready for sale.

PENCRAIG-DU AND CAENANT.—Capt. Matthew Francis (Dec. 4) reports—The adit level at Pencraig-du is in a fine lode, orey for 4 ft. wide, yielding from 10*l.* to 12*l.* worth of ore to the fathom; the rise over the deep adit, at Caenant, is unproductive.

SOUTH MOLTON CONSOLS.—Capt. W. H. Whitford (Dec. 6) reports—Since my last, we cut a large lode running north-west by south-east, forming an angle of 38° with the main lode; it is composed of white iron, flookan, quartz, and small portions of lead ores. About 10 ft. further east we cut our main lode, which is about 2 ft. wide, with a leader of lead, very rich, 6 in. wide, which will produce a considerable quantity of ore; the caunter will form a junction with the main lode about 4 fms. farther south, at which point (reasoning from analogy) we expect a large and rich bunch of lead. We have several fathoms of orey ground gone down in the level above, which is the adit; and there can be no doubt, when our 12 fm. level is extended north and south on the course of the lode, and the old mine drained, that considerable returns will be made.

SOUTH WHEAL JOSIAH.—Capt. J. Hambly (Dec. 6) reports—The works are progressing regularly, and have cut two fine lodes—a tin lode, 4 ft. wide, and good work for tin in it; also, a copper lode, with a very fine gossan, with mundic and copper in it, and likely to make a good lode.

SOUTH WHEAL TRELAWNY.—Captain W. Jenkin (Dec. 4) reports—The lode in the 80 fm. level south is 2 ft. wide, composed of fluor-spar, soft killas, mundic, and sprigs of lead; the lode in the same level north is still in the elvan course, and split into branches, composed of fluor-spar, capels, mundic and spots of lead. The water is also a little quicker.

TAMAR SILVER-LEAD.—Capt. J. Sprague (Dec. 4) reports—In the engine-shaft the lode is 2 ft. wide, producing good stamps work. In the 175 end south the lode is 6 in. wide, composed of mundic, capel, and ore. In the 160 end the lode is 3 feet wide, yielding good work, and opening ground that will work to advantage. In the 145 end the lode is 1 ft. wide—saving work. In the 135 end the lode is 3½ ft. wide, composed of capel, can, and ore—work of a moderate quality. At the north mine, in the 60 fm. level, the shaftmen are engaged cross-cutting towards the lode; in the 70 fm. level the lode is 3 feet wide, orey throughout—saving work. We sampled on Saturday, the 2d inst.; computed 65 tons of rich silver-lead ores.

TINCROFT.—Captain P. Floyd (Dec. 4) reports—Palmer's shaft, on East Pool lode, is now down 90 fms.; the lode is worth 6*l.* per fm. for copper. The shaftmen are engaged in cutting the plat. In the 80 fm. level west the lode is without alteration, and worth about 8*l.* per fm. for copper. At North Tincroft, the lode in the 100 fm. level east is worth 8*l.* per fm. for copper; the 100 fm. level west is worth 10*l.* per fm. for copper. The 90 fm. level west is worth 16*l.* per fm. for copper; the 90 east has materially improved; it is now worth 24*l.* per fm. for copper. The 80 fm. level, east of Willoughby's shaft, is worth 9*l.* per fm. for tin; in the winze, sinking below this level, the lode is worth 6*l.* per fm. for tin; and to the west of engine-shaft, in another winze, sinking on this lode, the lode is worth 8*l.* per fm. for copper. On Highburrow lode, the stopes in the back of the 142 fm. level, east of Martin's east shaft, are worth 20*l.* per fm. for tin; the stopes, west of Martin's east shaft, in this level, are worth 30*l.* per fm. for tin; east of engine-shaft, in the back of the 142 fm. level, the stopes are worth 12*l.* per fm. for tin. The stopes, in the back of the 120 fm. level, are worth 15*l.* per fm. for tin; in the winze, sinking below this level, the lode is worth 18*l.* per fm. for tin. On Chapple's lode, in the 100 fm. level, west of downright shaft, the lode is 4 ft. wide, with spots of copper ore; about 6 fms. more driving, in this level, will bring us under the run of ore ground gone down in the bottom of the 90. In the 90 fm. level west the lode is worth 7*l.* per fm. for copper. The 80 fm. level west is worth 5*l.* per fm. for tin. Blyth's shaft, on Dunkin's lode, is sinking below the 84 fm. level; the lode has improved, and is now worth 8*l.* per fm. for copper, and has a very promising appearence; in the 84 fm. level east, on the south lode, the lode is 2 ft. wide, with stones of copper ore; in the bottom of Chapple's shaft, on the south lode, the lode is worth 8*l.* per fm. for copper. In Dobree's lode, in the 58 fm. level, east of Chapple's shaft, the lode is 1½ ft. wide, with occasional stones of copper ore. At Wheal Providence, on Wheal Druid lode, the lode is 2½ ft. wide, promising but poor.

TIN VALE.—Capt. James Hosking (Dec. 6) reports—I am well pleased to find all hands getting on well. We have commenced dressing the tributers' work, and are making tin fast. I leave this day for Pennant.

TRELEIGH CONSOLS.—Capt. William Symons (Dec. 2) reports—In the 115 fm. level, at Garden's, we have cut the main lode in this cross-cut, and cut into it about 2 ft., but not through it; it consists of mundic, spar, and ore, with a good appearance; more will be seen of this next week. In the 100, west of Garden's, the lode is 1 ft. wide, no mineral. In the 90, east of east cross-cut, the lode is 18 in. wide, with stones of ore; in the 90, west from east cross-cut, the lode is 10 in. wide, worth 6*l.* per fm.; in the winze, below the 90, the lode is 2 ft. wide, with stones of ore, not to value. In the 70, west of ditto, the lode is 2 ft. wide, of a promising character, but little ore; in the winze, below the 70, the lode is 18 in. wide, but little ore. In the 60, west of ditto, the lode is 15 in. wide, with stones of ore only. In the 50, west of ditto, the lode is 20 in. wide, improved in appearance, not much ore. At Wheal Parent engine-shaft the sumpmen are putting down rods, pumps, &c.; we intend working the engine on Monday next. In the adit east, on the middle lode, the lode is 14 in. wide, but little mineral.

WEST WHEAL PROVIDENCE.—Capt. Ralph Penglase (Dec. 5) reports—Since our meeting in October, we have driven the 50 fm. level east to the boundary and west of Michell's shaft, to within 2 fms. of the cross-course, which we have delayed cutting through until Wheal Tremayne level is communicated with ours, and which will take another month to do; all the ground driven through in this level will average 8*l.* per fm., and we are stoping the back of it, with 14 men, at 20s. per fm. St. Aubyn's shaft is sunk to within 5 fms. of the 40 fm. level; there are 4 pitches working in the back of the 40 fm. level, 7 men at 9s., 4 men at 9s. 6d., and 2 men at 12s., in 20s. We have 4 pitches working in the back of the 30 fm. level—viz.: 2 men at 11s., 7 men at 11s. 6d., and 2 men at 12s. in 20s. Wheal Tremayne 40 fm. level will come into our sett 6 fms. under our 50 fm. level, owing to ours being a shallower adit than theirs. I expect it will take near 12 months to bring Wheal Tremayne 58 fm. level into our sett. We have a good quantity of productive ground opened, and our prospects are very good.—The last sales of tin from this mine and Wheal Tremayne have been as follows:—Nov. 24, West Wheal Providence, to Treloweth House, 8 tons 7 cwts. 2 qrs. 22 lbs., producing 414*l.* 1s. 6d.; Wheal Tremayne, to Mellanear House, 16 tons 4 cwts. 3 qrs. 13 lbs., producing 758*l.* 13s. 6d., and Nov. 29, to Chyandour House, 7 tons 11 cwts. 2 qrs. 19 lbs., producing 349*l.* 14s. 6d.—making a total of 32 tons 4 cwts. 0 qr. 26 lbs., and money, 1522*l.* 9s. 6d.

WEST WHEAL JEWEL.—Capt. Richard Johns (Dec. 4) reports—In the 70 fm. level, west of Williams's cross-course, on Wheal Jewel lode, lode 15 in. wide, with a very promising appearance for ore—drove last month, 2 fms. In the 57 fm. level, west of Williams's, on the same lode, lode 18 in. wide, worth 4*l.* per fm.—drove last month, 3 fms.; in the 57 fm. level, east of Williams's cross-course, on the same lode, lode 15 in. wide, worth 3*l.* per fm.—drove last month, 3 fms. 3 ft. In the rise in the back of the 57 fm. level, west of ditto, on the same lode, lode 18 in. wide, worth 5*l.* per fm.—rose last month, 1 fm. 1 ft. The 47 fm. level, west of ditto, on the same lode, is disordered by a small cross-course—drove last month, 2 fms. 2 ft. In the deep adit, west of Hodges's cross-course, on the same lode, lode unproductive—drove last month, 1 fm. 3 ft. 6 in. In the 30 fm. level, west of Quarry shaft, on Tolcarne tin lode, lode 2 ft. wide, promising for tin—drove last month, 1 fm. 3 ft. In Tregoning's shaft, sinking below the 12 fm. level, ground very hard for sinking, and poor for tin—sunk last month, 1 fm. 5 ft. In the deep adit, west of Quarry shaft, on the same lode, lode 2 ft. wide, producing stones of tin—drove last month, 1 fm. 5 ft. In the stopes in the back of the 12 fm. level, east of Pryor's winze, working on tribute, worth 12*l.* per fm.; in the stopes in the back of the 12 fm. level, west of Pryor's winze, working on tribute, worth 25*l.* per fm. The stopes in the bottom of this level, working on tribute, worth 18*l.* per fm.

WHEAL ANDERTON.—Capt. J. Carpenter (December 7) reports—Not anything has occurred of importance since my last report, of the 22d November, neither can I detail more particularly the prospects of the mine than at that date, as we are progressing very satisfactorily in the various departments now in operation. I beg to submit the following, to show what levels are driving, with the various pitches now at work, and prices given on Saturday last, being the regular setting day:—The 80 fm. level, driving west on the lode, which is about 3 ft. wide, is producing some good work for tin, and I anticipate making a good discovery very soon, as the lode in the 70, hereafter referred to, is much improved west of the present 80 end—now driving by four men, at 3*l.* per fm.; the 80 east is also set to four men, at 55s. per fm., until the lode is cut to the east of the slide, the relics of which we have already, and shows strong indications of being productive; not having opened sufficiently on it to describe its properties and size, I must refrain from entering more fully as to its producing qualities. The engine-shaft to be sunk until it is to a 90 fathom level, case, putting in ladders, roller, &c.—in fact, all the preparatory work for driving to the lode in that level—to eight men, for 75*l.* The 70 fm. level to drive west on the lode, by two men, at 55s. per fm.; here the lode is 4 ft. wide, producing some good work on the north wall. A pitch, in the bottom of the 70 fm. level, by four men, at 7*a.* in the 1*l.*; this place is 6 fms. before the 80 fm. level, and about 8 fms. behind the 70; therefore, from its appearance, I have strong reasons to believe the 80 fm. level will be very productive of ores shortly. A pitch in the back of the 70, by two men, at 9*s.* in the 1*l.*; another by four men, at 7*s.* 6. A pitch in the back of the 80, east of shaft, by two men, at 8*s.*; one west at 7*s.*, three men; one at 6*s.*, four men. From the present appearance of the pitches, I have no doubt of getting the same quantity of tin as sold last (15½ tons), in about one month from this time, and believe we shall continue to do so during the time we are sinking the engine-shaft to the 90, without taking into consideration what may be discovered in the driving of the level

WHEAL SARAH (ST. KEW).—Capt. John Mayhew, jun. (Dec. 7), reports—I visited this mine last week, in company with my father, Capt. Webb, and a practical miner, who has had long experience in different mines, and of various metals, but more especially lead ores, and am happy to find that their opinions are very favourable for this mine. Captain Webb broke, in my presence, several stones of lead, from 7 to 10 lbs. each, from a lode about 2 feet wide, in the bottom of the 16 fathom level; the present end going north, our agents tell us, will more than pay for driving. We have not yet cleared up the 20 fm. level so as to see the lode; but Capt. Trevarton says he was the last who saw the lode, and states that it will pay for stoping, being a lode nearly 3 ft. wide, and continues that size for upwards of 20 fms. in length. We expect next week to get the water in fork to the bottom of the mine, so as to extend away our levels, as well as to sink our engine-shaft. We were pleased to find our machinery laid in a scientific manner. Capt. Webb tells us (who is a practical engineer) that the machinery is carried out in a very systematic manner. He is also well pleased with the visible appearance of the lode and its vicinity; and it is his opinion, that not only this mine, but the district, will ultimately prove a great object, well worthy the attention of the capitalists. Our agents tell us that they shall immediately prepare their floors for dressing, as well as erect their stamps. I expect next week that Capt. Spargo will report on the appearance of the lode, as well as on the mine in general.

WHEAL TREMAYNE.—Capts. W. Blewett and John Phillips (Nov. 28) report—The lode in the 50 fm. level, west of Maddern's shaft, on the south lode, is 1½ ft. wide, producing rich work for tin; in this level we have driven through a long piece of tin ground—several fathoms of which will work at a low tribute. The lode in the 40 fm. level, west of Maddern's shaft, is 1 ft. wide, producing moderate work for tin; this part of the mine has a very promising appearance; we have every reason to believe it will prove productive for tin. In the 30 fm. level, west of Field's shaft, the lode is 3½ ft. wide, producing 2 tons of copper ore per fm. In a winze, sunk below the 10 fm. level, east of Wheal Margaret shaft, the lode is 3 ft. wide, and will produce 3 tons of copper ore per fm., of fair quality; the last 8 fms. sinking has produced 3 tons of ore per fm.; this winze is sunk as deep as the 30 fm. level, and, for about 10 fathoms to the west of it, the piece of ground between the end and the winze is likely to prove very productive; we expect to drive through it by the end of next week; in the bottom of the winze before-mentioned, we have driven west about 3 fathoms; the lode is 4 feet wide, and has produced 4 tons of ore per fathom; and this part we have suspended for the time. On Saturday last, we set Wheal Margaret shaft to sink under the 17 fm. level to the 30 fm. level, at which level we shall commence driving east with all

speed towards the winze before-mentioned, which is 17 fms. east of Wheal Margaret shaft; the prospects of this part of the mine are very good; the tin ground, in the western part of the mine, on the engine lode and branches, is much the same as when reported last. We have sampled, this day, 164 tons of copper ore.

WHEAL TRESCOLL.—Captain J. Webb (Dec. 6) reports—We have now driven 14 fms. on the course of the B lode, No. 1, and find it the same as when I last reported—rich for tin, and the ground fair for driving. One of the proprietors, Mr. Mayhew, was here last Saturday, and broke a stone of tin from the lode, very rich, weighing 120 lbs., which would produce 80 per cent. for black tin; part of the same is packed up and sent to Coggeshall, Essex, for inspection. We have stopped our south cross-cut for a few days, on account of cutting a large body of water proceeding from another lode; and we have put the men to drive east on the B lode, to cut the elvan course crossing it, in doing this we shall ease the water from this cross-cut; we have not as yet cut the B lode, No. 2, as we have met with a small bar of ground in this level, but we expect soon to get through it, as they do not last far in this mine. I am rather surprised in seeing shares in this mine quoted at 5¾, when, at the same time, they are worth 20*l.* per share; I have some few shares in this mine, and will not sell them for 25*l.* each. We have had very heavy falls of rain here during the last 10 days, which has thrown a great quantity of water in the mine, but our little engine keeps it with ease.

WHEAL VINCENT.—Captain John Spargo (December 7) reports—We have this day set our engine leats at 8d. per fathom. The men are getting on with the lobby in a very satisfactory manner; our operations are chiefly confined to this work. We have about 20 fms. to open out, after which we shall drive close under the turnpike-road. We are also erecting our capstan, and shall get the shears on the mine in a day or two; we have brought almost all the materials from Wheal Martha, with the exception of the wheel, which I have set to take down and re-erect for the sum of 7*l.* We have cut the north branch of the south lode, which we intend to drive on. We expect that it will intersect the main part next week. Since we commenced driving (which is only a few days), the branch is much larger, carrying with it some good work for tin. We hope next week to see more of the size and quality of the lode.

WHIDDEN.—Capt. John Kernick (Dec. 4) reports—Caunter's shaft, sinking below the deep adit, is much the same as last reported. I have put the men in the shallow adit, driving west, to cross-cut through the lode, as I expect that the ground is more favourable for driving on the south side of the lode

FOREIGN MINES.

COPIAO MINES.—The following is the mine report for August:—

Copiapo, September 30.—San Pedro Mine.—The 10 fm. level, driving west on the main lode, is poor and very hard at present, although in the beginning of the month there was a good branch of ore in it. We are driving in the same level, on the north lode, and have a large vein, but the rich part is only 6 in. wide; it has a very promising appearance, but the quantity it can yield at this width is but small. The 5 fm. level, on the main lode, looks pretty well, being 12 in. wide, of rich ore, but the ground is hard, which renders our progress slow, and the operations expensive. The winze from the 5 to the 10 fm. level has been communicated, and we are now stoping the intermediate ground, which yields well; the vein is 10 in. wide, and very good, but this will only last a month or two. The stopes in the back of the 10 fm. level, on the north lode, have produced well in the last month, but are not looking so good at present, still I hope they will improve again shortly, and that my next report of this mine may be more encouraging.

Checo Mine.—In this mine we have several points that present the most inviting appearance, and they are yielding some very good ore, but not enough to pay the expenses, yet they exhibit such indications as it is not easy for one to retire from. We have sunk more than 15 fms. below the 30 fm. level, to the east of Harman's shaft, in a most beautiful vein, very large, varying from 3 to 8 feet wide, and always producing some good stones of ore, which has led us to hope every vara that we were coming on a large bunch of rich ore, but hitherto we have been disappointed, for it is still the same; I sincerely wish that, if it does not come better soon, that it may become poorer, then I shall know what to do. In describing the above, I have also given you a description of the winze, sinking in the bottom of the 20 fm. level, to the east of the Victoria shaft, they are so similar. In the 12 fm. level we are driving east of the new shaft, where we have a lode, say 6 ft. wide, about 1 ft. of which is good ore; this promises to improve, and I hope it will take place shortly. We have two stopes looking well, one in the back of the 20 fm. level, to the west of the Victoria shaft, where the vein is 10 in. wide, and the ore good, but the end is at present poor; the other is the back of the 12 fm. level, to the west of the new shaft, where the rich part the vein is 15 in. wide, and the ore 80 per cent. We are doing to the utmost of our power to bring this mine into a good state, and I can only hope that our expectations may be crowned with success.

Esperanza Mine.—Within the last few days an improvement has taken place at one of the points were we are sinking in this mine. The lode has become softer, and is yielding some very good stones of rich ore, but it has not as yet sufficiently declared itself to enable me to offer any very positive remarks; we are, however, in great hopes that before another month it will have greatly improved. The other two points, the level and the winze, are without any material alteration; the lode is large, and has a very promising appearance.

San Juan.—We have not broken down the lode here since last reported on, but as we find it in a large and hard vein, it is more to our advantage to have a long "stretch" or length opened on before we break it down, besides I am hoping to have powder cheaper next month.

Produce at San Pedro for August	.....	*Tons* 35
„ Checo „	.....	32
„ Esperanza „	.....	5
„ Farellon dressed ore „	.....	8
Total	.....	*Tons* 78

The *Avoca* arrived at Swansea on the 25th November, with 300 tons of copper ore, and 31 tons of silver ore; the *Henry Jones* had sailed for Swansea on the 23d September, with 591 tons of copper ore for the company, and the *Catherine Jenkins*, 530 tons, was loading.

ST. JOHN DEL REY MINES.—The gross amount of produce at Morro Velho, for the six months ending 31st August last, has been as follows:—

March	£6510	0	0	June	£5409	0	0
April	5901	0	0	July	6817	0	0
May	6402	0	0	August	7631	0	0
Making a total of					£38,570	0	0
Deduct—duty at mine, 5 per cent.; export, 2 per cent.					2,694	0	0
					£35,876	0	0
Expenditure for six months					22,604	0	0
Nett profit at Morro Velho					£13,272	0	0

The following is a statement of the company's finances:—

Cash at the bankers'	£3,855	0	0			
Bullion arrived at Falmouth	13,359	0	0			
Securities	5,500	0	0	—22,714	0	0
Deduct drafts running from Brazil				9,000	0	0
Total				£13,714	0	0

Dividend now declared, of 17s. 6d. per share, will take £9625 0 0

ACCIDENTS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—On taking up the *Manchester Guardian* of the 2d inst., I find two fatal accidents recorded, under circumstances which appear to illustrate, in a remarkable manner, the evil effects which result from a want of Parliamentary legislation.

The first of these accidents occurred by a fall of the roof at West Houghton; and the coroner elicited, during the examination, the following facts:—That Mr. Ellis Crompton, manager for Mr. Hulten, did not provide sufficient props for the safety of the men; and one man stated, that his brother and himself had had to take part of his father's loom to use as props." The coroner said, that if the deceased had asked Mr. Crompton for props, and they had not been supplied, he would have charged the jury to find a verdict of "Manslaughter"—whereas, a verdict was returned of "Accidental Death," the jury having requested, that Hulten might be written to, to order a sufficient number of props to be supplied to the colliery.

The other accident occurred near Oldham, where a *single person* was entrusted to manage the winding-engine, and to take out and put tubs into the cage during the night, although the engine was at a considerable distance from the pit's mouth. He was seen to act imprudently, in order to save walking between the engine and the shaft; and it was supposed, that similar conduct had been repeated, which occasioned him to fall headlong down, whereby he was killed. The jury returned a verdict of "Accidental Death," caused by his own carelessness, and considered it necessary to caution the proprietors against allowing an engineer to act in the same manner again.

Now, according to these statements, two unfortunate persons have lost their lives, in consequence of the proprietors, or their agents, having either neglected to provide necessary means of safety, or from having permitted, or directed, a workman to undertake duties incompatible with reasonable regard to safety; and in both these cases the jury direct, that the proprietors be warned not to pursue such conduct. Yet, although such neglect at the hands of the officials has occasioned the loss of life, we hear nothing of any compensation to the afflicted families of the deceased. Will any one venture to contend, if the workmen had a Government inspector to appeal to upon similar occasions, that many of these casualties would not be prevented? No less than 141 deaths have been recorded in your paper for the current year from falls of roofs; and how many of them may not have been the result of negligence, or an unworthy economy in the provision of timber? The above facts do but accumulate proofs of the beneficial effects which would attend Parliamentary legislation.—OBSERVER: *Durham, Dec. 7.*

Walsall—Three Men Killed by Falling Down a Pit Shaft, at Bentley.—The three deceased were in the act of descending the mouth of the shaft, to commence work, about 6 o'clock in the morning, accompanied by a lad about 14 years of age (who escaped by holding on the chain of the skip), when about 5 yards from the mouth of the pit, the chain on one side of the skip, in which they were standing, suddenly gave way, and the three deceased men fell to the bottom of the pit, nearly 100 yards. The first was named Stephen Knight, aged 21 years, a single man; the other two sufferers, both Irishmen, were named Martin Costels, aged 28, and John Gregan, aged 20 years.

Bridgend.—On Monday last, an explosion of fire-damp took place in a pit, at the Tondu Iron-Works, when 6 men, named Rees, Tyfry, Mainwaring, Canton, Lewis, Roberts, Howell, and Cooper, with two others, were severely burned—the two first dangerously, and Howell had his arm broken.

Cefn Cwse Iron-Works.—R. and H. Piper, brothers, were knocked down, and severely bruised, by a fall of roof.

Tweidale.—R. Buxton, aged 14, had his thigh broken by a fall of roof.

Corngreaves.—C. Wood was severely bruised all over his body by a fall of coal in this colliery, the property of the New British Iron Company.

THE ASTURIAN MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Several articles which have appeared in your paper, under the signatures of "Detector" and "Nil Desperandum," force me very reluctantly to address you and your subscribers.

I had deferred replying to the false statements at the last general meeting of the Asturian Mining Company, until I could leave this country for England, intending then to enlighten such persons as might wish to learn the truth regarding the real position of that company. But the several articles which have since appeared in your paper, make it imperative on me to defend myself at once, through the same channel. I, consequently, beg of your impartiality for the insertion of this communication.

As it would require too much space to answer each article separately, I shall confine myself to a statement of such facts, as will, I think, refute the erroneous statements in the articles referred to, and the false ones made at the general meeting. I make this distinction, because your correspondents may have been led into involuntary error; whilst the direction must know the falsehood of what it has stated. I shall avoid as much as possible mentioning names, my intention being not so much to incriminate others, as to exculpate myself from false and, I may add, illiberal and ungenerous statements, made during my absence, and when my calumniators could not but presume on my ignorance of what was passing. I am prepared to support every statement I make, by documents which cannot be destroyed, and by letters in my possession.

First, as regards expenditure, I give you the following extract from the company's books in the Asturias, which shows the total amount spent in Spain up to 31st August, 1847, when I left. With the company's balance-sheets in London I have not, and never have had, anything to do, and freely confess I do not understand them. I protested against the amount carried to "works and machinery"—viz.: 72,540*l.* 3s. 3d. in the balance-sheet for April, 1847, in a letter addressed to Mr. Colquhoun in this city, to which I have only got an evasive answer, nor do I know even now if it has been attended to or not.

Total Amount of Expenditure made in Spain, from the Company's Books, up to 31st August, 1847.

By expenses incurred previous to my management	.....	*Rs.* 214,639	25
„ on metal mines	.....	899,574	17
„ on iron-works, mercury works, working of the remelting foundry, cottages, offices, stables, brickyards, quarries, river wall, timber, oxen, cartage, roads, earthwork, &c. *Rs.* 3,113,931	22		
Miere's collieries and roads	.....	406,075	12
„ iron mines, land, and roads	.....	183,456	08
„ purchase of land for the works	.....	133,626	28
Total expenditure on iron and mercury-works	..... *Rs.*	3,837,089	31
„ Duties, freights, carriage of goods, and agencies	.....	360,172	09
„ Santo Firme Colliery	.....	117,847	30
„ Tudela and La Foz, proprietors (to keep possession)	.....	77,951	03
„ Cash paid individuals to account	.....	52,306	10
„ General charges, banker's commission, furniture, &c.	.....	493,569	12
Total expenditure in Spain	..... *Rs.*	6,053,151	01
Or, at *Rs.* 100 to the £1	..... £	60,532.	

These accounts will speak for themselves, and show, at the same time, what it has been the endeavour of the directory to conceal from the shareholders. As I shall have to refer to them when treating of the other subjects on which I have been attacked, I shall only add here, first, that from the beginning and constantly, both my brother and myself protested against the outlay on the metal mines, as foreign to the purposes for which the company was formed, and as unlikely to turn out well from their geological position. We were told, however, it did not concern us. And, secondly, that I had nothing to do with the management of any of these mines, except the "Eugenia," which I took over on the 28th September, 1846, when the greater part of the outlay on that mine had been made, and all the others abandoned.

Next you will remark that the iron-works, mercury-works, &c., which are charged in the balance-sheet, made up to the 30th April, 1847, under the head of "works and machinery," at 72,540*l.* 3s. 3d., had only cost up to the 31st August same year, 38,370*l.* in the Asturias, to which amount have only to be added the sums paid Messrs. Graham and Cowen on their contracts up to that period, and some few tools sent out, all of which, at that period, cannot have exceeded 12,000*l.* It is for the directors to explain this discrepancy. I should further add, that in these 38,370*l.* are not only included the iron-works, collieries, and iron mines, but also the mercury-works, the working expenses of the foundry, large stables and sheds, cottages, offices, and roads, a very expensive river fence wall, and upwards of 3000 yards of oak timbered galleries in the "Mieres" collieries alone, independently of the stall workings. These works were began in October, 1845, and when I left in August, 1847, two months ought to have sufficed to complete the little that remained to be done to the rolling-mill, all the remainder of the works being completed. It has always been the endeavour of the directors to keep from the shareholders the late period at which the works were began; the date I give, however, is positive. About the end of June, 1845, I went to Madrid, to get the Royal decree, which the directors had failed in getting, regarding import duties; I returned with it on the 25th July, and the first Englishmen arrived on the 23d September. The company's collieries at Mieres were marked out by the Inspector of Mines, in December, 1844, and I began opening them on the same month. From 1843 to 1845 the directors restricted their operations to the metal mines and the surveys of the railroad, nor was it till the first had turned out a complete failure, that they began to turn their attention to the iron-works and collieries.

As regards the *many thousand pounds thrown away* on the mine roads, you will see, by reference to the accounts, that the total amount spent by me, not only on these, but all the other iron mines, roads, purchase of land, working, and including a stock of about 1000 tons, carted to the works, is only 1834*l.* I need add nothing more in refutation of this accusation. As regards the quality of the particular ore in question, I have Mr. Lambert's own analysis, by which he makes two of the mines, so unjustly deprecated by your correspondents—Lagos No. 1 to contain 30 per cent. of iron; and Lagos No. 3, 42 per cent. These are below my trials; but I prefer giving them, as they cannot be suspected. I have worked them in the remelting cupola (a small one) three days and nights following, passing 195 charges, and blew the cupola out as clean as when I began the trial, and I engage to make iron from them with profit at any period. If the accident, in the first blowing in, was not solely due to the coke, why has none of that coke been yet used in the furnace, although there is a large stock of 1000 tons in the works, especially as I am convinced that, with the furnace once fairly in blast, it can be used to advantage as regards cost? Besides, Mr. Pratt visited these mines with me in Dec., 1846, when the road was nearly completed, and he highly approved of them. Surely, if only as a geologist, he should be able to judge of iron ore—if, therefore, there had been any error of judgment in this matter, his would have been equal to mine. With the 800*l.* compensation so unadvisedly paid the contractor, after my retirement, I have nothing to do. I passed with him the cheapest contract for cartage which has ever been passed in the Asturias, as is proved by the fact, that the iron ore, with five miles' carriage, stood the company under 3s. 6d. per ton, delivered at the furnace back; whilst subsequent contracts have been made at so extravagant a rate, as to receive no other explanation in the Asturias, than that parties connected with the company must be interested in them—a supposition, however, in which I am, of course, far from participating. To conclude on this point, I offered to Mr. Colquhoun to engage to put the furnace in blast in the course of Sept., 1847; whilst it was not blown in by Mr. Lambert till May, 1848. As for the mill, it is not even yet at work, so that at this period the company is producing nothing but an article unsaleable in this country—viz.: pig-iron, which, to find a market, must be converted into castings and bar-iron. It is well known in the Asturias, that the puddlers got from Malaga, at a heavy expense, have failed; those expected from Belgium will probably do the same, because of the injudicious mixture of men; and as for foundry business, it appears not even to be thought of on anything like a scale to realise profits. The castings sold at 20*l.* per ton, mentioned in the annual report, consist of two fire-grates and a stove, which, however massive, cannot weigh 3 cwts.; but when such accounts are presented and passed, is it to wondered at that statements like these should be made also?

As I said above, I took the management of the cinnabar mine on the 28th of Sept., 1846, at which period Capt. Mathews left a stock of 5584 quintals at the mine, which, valued by Mr. Edward Solly's analysis, represented a value of 6320*l.* When I left in August, 1847, although the lower workings were, for at least 6 out of the 11 months, under water, I had increased this stock by 6106 quintals, which, at a low estimation, to avoid errors, were worth 6195*l.*; there was, consequently, in August, 1847, a value of 12,515*l.* extracted and ready for smelting. Upwards of a twelvemonth has elapsed since then; at the lowest estimation, therefore, there should be at least a value of 18,000*l.* extracted from the mine at this date; how is it that not 5000*l.* of these have yet been converted into mercury?

I only worked the cinnabar retorts for a short time before I left. For 20 days' working, I got, from two retorts only, a value of 1200*l.* in mercury; this is at the rate of 900*l.* per retort per month. Admitting that this figure is high, and taking only the quarter, or 225*l.*, as the monthly product of each retort, with the six retorts I left set (two working and four ready to heat), they should have made 16,200*l.* worth of mercury in the 12 months that have since elapsed; whilst, deducting the quantity made by me, they have not made 4000*l.*, or not the quarter of that which, even on this reduced scale, ought to have been made with the apparatus such as I left it. But other apparatus has been put up, and among it a large and very expensive furnace, although I had cautioned them against this mode. What has been the result? Why, that they never got any mercury from their monster furnace, and that the produce of quicksilver has gradually dwinded down in the other apparatus, till, at this moment, and for some time past, they do not get 150*l.* worth of mercury per month. If this, and the make of iron in a non-saleable shape, with works in so favourable a state, is called good management, I am content to be called the blunderer which your correspondents suppose me to be; for either the works are not in the position the directors state them to be, or they do not yield the results which they ought.

As to my having been "*dismissed*," I have only to say, I sent in my resignation on the 25th Nov., 1846, and left in August, 1847; and I can show you, Mr. Editor, or any party who may wish for proof of this fact, many letters from the directors most warmly pressing me not to leave. Since I have left it has been convenient to them to lay on my shoulders the burthen of their "manifold sins," and, had they used but common moderation in this proceeding, I should have been content to endure it, however disagreeable and unjust, rather than intrude myself upon the public; but they have gone too far, and must take the consequences. Whatever may be the opinion of the directors of the Asturian Mining Company, regarding my professional qualities, I have had some little experience in these matters, having been born and bred in iron-works; and I conscientiously assert, that I never knew a worse managed affair than this company, both in London and in the Asturias. So long as the present system is continued, call after call will be made and spent, till the capital will have grown out of all possibility of returns. By their own accounts they have spent upwards of 50,000*l.* this last year, and, as the 6600*l.* balance to their credit appears to be doubtful, it is probable this is nearer 60,000*l.* What has been *added* to the property in consequence of this large additional expenditure?

It is not by writing in newspapers that the evil will be cured. Why do not the shareholders institute a severe inquiry? It is a Spanish anonymous company, and, as such, the shareholders have the right to change, or modify, the directory whensoever they please. While on this subject, I may observe that it would be well that the shareholders should make themselves better acquainted than they appear to be with the laws which govern anonymous companies; they might avoid those illegalities which are being committed, and which may hereafter entail serious law-suits. For instance, no shares can be forfeited save by the Spanish tribunals: has this been attended to in London?

If, with the powers they have in their hands, the shareholders choose to lose their money, let them pay up the 7*l.* per share for which they are still liable; but let them lay the fault to whom it rightly belongs. I have no pretensions to infallibility; but I conscientiously believe that, in this case, I have committed very few errors, if any. I am perfectly willing to submit to the strictest inquiry regarding everything I have done. I am ready to give any explanations in my power to those who may think fit to apply to me; but I would remind those who seek to injure my professional character by false statements in the public prints, that there are such things as actions at law for defamation of character, and that I may call on some to *prove* what they so lightly assert.

To conclude: my estimation of the value of the company's property is unaltered; I am convinced (and I know the affair well), that it not only is a good undertaking, but one of the best of the kind either in Spain or elsewhere. But the best affairs are lost by bad management, and the present, besides its many other disqualifications, has not even the most remote idea how the iron trade in Spain should be conducted to give returns. In short, unless a prompt remedy be applied, the whole of the capital will be spent, the present company ruined, and, in all probability, the affair will be taken up by some more skillful parties, who will show the present shareholders, though too late, what they might have done with their property.

In the foregoing statements I have made none but such as I am prepared to prove. I could say much more; but, as already observed, I do not so much seek to attack others as defend myself; and, if any evil result from this communication, it will be the fault of those who have forgotten what is due to me, and not mine. I will only, therefore, repeat, that I am open to any inquiry, or explanation; and should my advice be considered worth having, it is at the shareholders' service; but I shall resent the continuation of false assertions in the public prints, by requiring the parties who make them to *prove them.*

Madrid, Nov. 23. JOHN MANBY.

UNITED MEXICAN MINING ASSOCIATION.

SIR,—Knowing your courtesy in affording facility, through your intelligent Journal, for the expression of opinions of proprietors, affecting mining interests, I would hint to the managers of the United Mexican Association (who, through the chairman, have professed at the stated meetings a desire to deal promptly with the financial resources of the company), how very desirable the announcement of the expected dividend would be, *on the arrival of the mid-December packet*, by which we are assured of a specie remittance of about 14,000*l.*, independent of some 4000*l.* in hand, and *irrespective of the* 5000*l. reserve fund, &c.* I am induced to press the adoption of this considerate step, from the fact that deferring its announcement until the last day of January would procrastinate unnecessarily what cannot but be welcome to the shareholders, at a period of the year when disbursements weigh so heavily, exclusive of the commercial pressure. In common with my fellow-shareholders, I cannot but rejoice at the timely substitution accomplished, by the replacement at the *Rayas* Mine of our able and prudent manager, Mr. J. N. Shoolbred, in renewed health, which that he may long enjoy, is the sincere wish of your obliged correspondent,

London, December 6. AN OLD MEXICAN.

P.S.—I would further observe, that although the announcement of a satisfactory dividend would, at the ensuing meeting, be an intimation from the lips of the chairman very gratifying—the *then stating* it, *un fait accompli*, would be not the less pleasing to him, or to his hearers.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

REVIVAL OF MINING IN FLINTSHIRE.—We are sure the public will be happy to learn that a very influential and spirited company have purchased from the Milwr Mines Company the whole of their extensive mines, with machinery equal to 470 horse-power, and the existing leases, and that they have also made most advantageous terms with the lords for other leases; and we feel proud to say, that both the lords and their agents richly deserve the thanks of the company and neighbourhood generally for their liberal grants, by setting a very excellent example to the other proprietors of the Flintshire mining district, and to spirited adventurers. The Milwr Mines have been, up to the present time, very profitably worked. On the day of taking possession by the new company, the miners from Holywell and the neighbourhood generally, assembled in great numbers, preceded by a band of music, colours flying, &c.; they also erected a triumphal arch on the road where the new company were to pass, with a chair decorated for the new manager; it was quite a day of rejoicing for the whole neighbourhood, and the miners displayed much anxiety to take bargains; active operations are now in progress, and the management, under the able superintendence of Capt. Absalom Francis—a gentleman well-known and highly respected in the district. The extent of surface of these mines is nearly 1000 acres, in the rich mineral chert district, and drained from natural causes 110 yards deep, giving great facilities for laying open the numerous veins already discovered, but not worked. The shares are divided into 100, of 100*l.* each; five directors are appointed, three of whom will form a quorum. They have designated themselves the "Milwr Mines New Company."

EAST WHEAL UNITY.—This mine is situate in the parish of Kea, on the borders of Gwennap, Cornwall, and is surrounded by some of the most important mines in the locality. During the last working, upwards of 800*l.* were expended, and which working led to the discovery of two valuable lodes, productive of good tin and copper. One of the lodes was worked on to the extent of 20 fms., and during such working tin and copper were raised, and which made a desirable return. The last efficient working was suspended in consequence of a lawsuit between the adventurers, and through which the sett was eventually revoked. A company is now being formed, to work the mine on the Cost-book System, and on an economical scale. From the appearance of the lodes, the most sanguine hopes are entertained. During the period when the standard was low for tin and copper, tributers (miners) applied for power to work on tribute, and pay 5s. in 1*l.* to the owner of the land. They accordingly worked, and earned wages herein, which circumstance, with the necessary examination of the lodes, led the present owners to get possession of the mine. It is the present intention of the shareholders to drive east on the course of the lode from the adit level, and, in so doing, the lodes will carry backs to the height of 40 fms., and a returning profit is fully anticipated.

METHA MINE.—The lode in this sett has been cut in the 40 fathom level, where the spar has appeared, containing some lead. The 40 fathom level in this mine, is the 30 fm. level in East Wheal Rose, and it is anticipated that at the 50 fm. level, it will lead to a good discovery for lead. It might be observed, that the lead in the lode bearing north in East Wheal Rose, does not make so rich near the surface as in deeper levels. The Metha adventurers have driven on the lode towards the East Wheal Rose boundary, and the distance between the northern workings of the last-named mine and Metha is about 70 fms. Between this distance the lode has been cross-cut on the back thereof, and there is now no doubt of the existence of this important lode running through Metha estate; in fact, a portion of this estate is in East Wheal Rose. It was thought that the elvan towards the northern part of East Wheal Rose Mine would have heaved the lode east or west, or deranged it, but it is now proved on the contrary, for, in driving through it, the lode proved itself to pass through this course without being injured, and appears greatly improved. The land of Metha, adjoining East Wheal Rose, is as congenial for lead as any part thereof; and there is little doubt but this mine will soon rise itself into importance; and its close relation to the mine before alluded to, gives weight to this enterprising adventure; whilst the union of the lode in the two setts, with its present appearances of the same par with lead, holds out strong hopes of a good and permanent mine. Several of the most respectable mine

agents in the locality bear testimony to the foregoing facts, and from whom the above information was partly derived, under a strict investigation on the 8 ct. [The above statement has been forwarded to us by a disinterested party, to give some of the more enterprising adventurers the true state and prospects of this property; and he states, that it is only just that this mine should be brought before the public notice, so that the shareholders, who have purchased at large premiums, might be fostered in their enterprising plans.]

MARKE VALLEY.—Their present returns are about 200 tons per two months and there is no question but that they could raise double the quantity, if they thought proper, from the ground already laid open above the 65 fm. level. They are now driving in the 80, which is the next level, and expect to cut the lode at a point that will be immediately under the present productive ground in the course of a short time, when there can be but little doubt that the produce and profits of the mine will be greatly increased.

WHEAL ASH.—The mundic part of the lode is 6 ft. wide; the size of the entire lode is not known, as it has not been cut through below the adit—i. e., for 16 fms. A little copper ore has been found near the mundic, in the sparry part of the lode.

WHEAL FRANCO.—An important improvement has taken place here. A course of ore has been met with in the 47 fm. level, 7 fms. behind the shoot of ore in the 32 and 35 fm. levels, and which was the best work that has been seen in the new mine; this will give, if it holds down, of which there can be no doubt, ore ground in the 42 fm. level, and backs 15 fms. high. The lode in the 62 is not cut, but a small branch of good ore has been met with, and the men thought they had the lode.

WHEAL YEOLAND.—The western end, in the new south lode, is much improved, and the east still holds down quite as good as when you inspected it; indeed, the lode is now quite as good for the whole length as it then was in and about the shaft. The last call of 30s. rather more than clears off all liabilities; and, I am happy to say, that on the former calls there are no arrears, so that the position of this mine is good. The new south lode pays, at this time, all the costs of the mine, from this one place, and will do more this month (Dec.). The 84 cross-cut, on the old south lode, is past the place in which we should have cut it but for the slide; it looks well, as the slide, in consequent heaving, effected so favourable a change on the new lode. The character of the country is very much improved; the lode, in all probability, will be cut this week.

BUDNICK CONSOLS.—A meeting of adventurers was held at the mine on Monday last, when the accounts, as follows, for September and October, were allowed, and 414*l.* 6s. 5d., a portion of the balance, ordered to be divided, and forthwith collected, at the rate of 3*l.* 17s. 5d. per share, the remaining portion having been paid for relinquished shares was carried to the debit of the next account:—To balance from August, 616*l.* 5s. 9d.; costs for September and October, 814*l.* 18s. 3d.=1431*l.* 4s.—By ores sold (less dues) and carriage of tin, 793*l.* 5s. 10d.: leaving balance, 637*l.* 18s. 2d.

POLSAITH CONSOLS.—The usual two-monthly meeting was held on Monday, the 4th inst., at the Globe Inn, Liskeard, when a call of 30s. per share was made, to meet the current expenditure of the mine. Capt. Faull reported—"That a cross-course had disorded the lode in the south end, in driving which we have gone through a promising and leady lode for 10 fms. in length. We have four men stoping in the back of the end; I think they will raise 4 tons of lead this month; they are still breaking good work. We have a pair working on tribute; they are breaking good work. If there be any certainty of success resulting from the appearances of a lode, we have every reason to expect it here In the shaft, at Tinner's Hill, we are down 3 fathoms below the 12 fm. level; the ground is pretty favourable.

SOUTH BASSET.—A meeting of adventurers was held at the mine on the 5th inst., when the accounts were presented, showing—Labour cost for Sept. and Oct., 1838*l.* 1s. 4d.; merchants' bills, &c., 821*l.* 3s. 3d.=1659*l.* 4s. 7d.—By sale of copper and tin ores (less lords' dues, 209*l.* 9s. 10), 2907*l.* 12s.—showing profit of 648*l.* 7s. 5d.; add balance from last account, 133*l.* 19s. 7d.=782*l.* 7s.—By dividend of 5*l.* per share (640*l.*), leaves balance in hand of 142*l.* 7s.

[From the *Plymouth Journal.*]

CALSTOCK UNITED TIN.—This undertaking has of late been let on tribute to a pair of miners at 15s. in 20s.; since our last it has been re-set at 13s. 4d. in 20s.

DRAKE WALLS.—Last Friday being setting day, many new pitches were set.

HAWKMOOR.—There is nothing of special interest here since our last.

EAST CROWNDALE.—The Rix-hill lode is without any material change.

WHEAL CALLTOCK.—In the deep adit, tribute ground is being laid open, and two additional men will be put to stope these backs next week. The end of the croos-cut, towards the north lode, is softer, and letting down much water, which indicates that a large lode is not far a-head. Some good branches of ore have been met with in this cross-cut during the week.

WHEAL ASH.—About 2 fms. on the north part of the lode has been taken down in the last week; the leader part of the lode is full 5 ft. wide, of almost solid mundic, the south wall of the lode has not been seen under the adit (16 fms.); a plat is now being cut preparatory to sinking another lift, and in doing this the width of the lode will be seen.

PLYMOUTH WHEAL YEOLAND EAST.—The end is still in the run spoken of in our last.

WHEAL FRANCO.—In driving the 47 fm. level east a good course of ore has been met with, about 7 fms. to the westward of the shoot of ore left in the bottom of the 32 fm. level, and as this extended 35 fms. in length, there is every reason to calculate on 42 fms. of good lode in this level. A branch containing good stones of ore has been cut, which induced the agents to suppose that it might be the lode, but such is not the case. The water is pressing out very strong from the end, which proves that a large lode is a-head.

PLYMOUTH WHEAL YEOLAND.—The new south lode is much improved in the western end. This is very important, as showing that the ore ground is extending westward as well as eastward. The lode in the 35 fm. cross-cut has not been cut, but the favourable change of ground indicates that the lode is near at hand.

STEAM-CARRIAGES ON COMMON ROADS.—We understand that good progress is making in the formation of the projected steam-carriage company, and that very shortly a prospectus will issue, under the sanction of parties of the first respectability and influence, the outline of which, we are informed, is to create 10,000 shares, of 20*l.* each, deposit 5s. per share, and that as soon as the trials of Sir James Anderson's carriage are completed, a full report will be made. Such persons as may feel dissatisfied therewith, or may wish to withdraw from further responsibility, may do so, upon forfeiting half the deposit; or if the trials are deemed successful by the majority of the subscribers, then the whole amount of the deposit be paid to those who may wish to withdraw, on returning their scrip. We understand a large amount of shares is agreed for, and those who wish for further information, may address to the *Mining Journal* office. We refer our readers to the important and able report on the subject by our correspondent, Mr. T. Clarke, C.E.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Price per share	Last Div.	*Traffic Returns.* 1848	1847
Belfast and Ballymena	37½	——	20¼	—	£ 367	—
Birkenhead, Lancashire, & Cheshi.	19	997,284	37	5 *p. c.**	661	550
Caledonian	141	3,993,732	19¼	—	4077	—
Chester and Holyhead	84	3,014,602	19	4	1167	—
Dublin and Drogheda	35½	774,875	28	—	615	720
Dublin and Kingstown	7½	395,915	—	6	929	851
Dundee, Perth, & Aberdeen Junc.	47½	544,554	25	8	1004	722
East Anglian (Lynn to Ely)	67½	1,167,104	4⅜	—	667	—
East Lancashire	44	1,733,915	15⅜	5	1569	855
Eastern Counties and Norfolk	307	10,364,505	11⅜	4	12668	11769
Eastern Union	50½	1,522,932	20	—	1100	1142
Edinburgh and Glasgow	67½	2,556,889	38	6	3007	3167
Edinburgh and Northern	78	1,722,213	15½	4*	1580	555
Glasgow, Paisley, and Ayr	109½	2,286,353	65	4	2420	2504
Glasgow, Paisley, & Greenock	22½	848,328	14⅜	4	854	1035
Gt. Southern & Western, Ireland	131	2,844,897	22½	4*	3018	1563
Great Western	305½	11,311,069	74⅜	7	10616	15511
Kendal and Windermere	10½	174,600	23	—	112	84
Lancaster and Carlisle	70	1,476,102	48½	4	1813	1279
Lancashire and Yorkshire	172½	8,242,628	57–8	6	9749	8477
London and North Western	435	22,835,120	117⅜	7	35599	35122
London and Blackwall	4	1,299,675	44	1-12	549	635
London, Brighton, & South Coast	162½	6,284,812	28¼	2½	7477	6666
London and South-Western	215	7,139,733	38½	6	7653	6536
Londonderry and Enniskillen	14½	154,643	16	—	105	102
Manchester, Sheffield, & Lincolnsh.	58	4,651,093	40	5	2618	2164
Maryport and Carlisle	28	443,974	40	—	—	511
Midland Company	463½	13,254,006	78	6	20061	18731
Midland Great Western (Irish)	50	725,332	17	4*	1119	890
North British	99	3,163,450	14⅜	5	2274	2086
Scottish Central	45½	1,245,496	25½	—	904	—
Shrewsbury and Chester	41	780,272	11⅜	5	1316	547
South Devon	50½	1,789,351	19⅜	—	1073	619
South-Eastern	163½	7,389,322	22	6⅜	7075	7107
Taff Vale	38	830,086	125	6½	1756	1797
Ulster	36	664,684	45½	—	—	671
Whitehaven Junction	12	150,879	9½	3	170	185
York, Newcastle, & Berwick	270	5,038,935	25½	8	13837	10671
York and North Midland	255	4,179,309	49	8	7029	7220
FOREIGN RAILWAYS.						
Amiens and Boulogne	76½	573,338	6	4	1088	967
Antwerp to Ghent (monthly)	31	——	—	—	—	—
Marseilles to Avignon	71½	——	8½	—	—	—
Dutch Rhenish	57½	——	⅛	—	769	920
Northern of France	211	2,000,000	6⅜	4	13603	13350
Orleans to Bourges (Central)	107½	——	——	——	2308	2612
Orleans to Tours	72	600,000	32⅜	6	3101	3720
Paris and Orleans	93	2,011,720	25⅜	12½	7825	6895
Paris and Rouen	88	2,089,916	15½	11⅛	5227	6283
Rouen and Havre	50½	——	7	—	2109	2228
Strasburgh and Basle (monthly)	90	——	6	1⅛	—	—
West Flanders (ditto)	—	——	⅛	3	1120	1615

* Interest.—Total for last week, £174,861, being an increase of £20,818 over last year.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Dec. 2, 1848, No. of passengers, 14,425.—Amount of money, £60 2s. 1d.

IRON, HARDWARE, AND METAL TRADES PENSION SOCIETY.—The SIXTH ELECTION of PENSIONERS of the above SOCIETY will take place in the month of MAY next. The candidates must be deserving and necessitous persons, occupying, or having occupied, the station of master, traveller, clerk, warehouseman, foreman, or apprentice, in any branch of the Iron, Hardware, or Metal Trades, in any part of Great Britain, or the widows of such persons.

The printed forms of application may be had of the undersigned, to whom they are to be returned, filled up with the required particulars, on or before the 5th day of February next, after which day no application relating to this election can be received.

Further information may be obtained from any member of the committee, in town or country, or from THOMAS HAWKINS, Honorary Secretary.

67, Upper Thames-street, London, Dec. 4, 1848.

N.B.—At the Fifth Election, which took place at the London Tavern on the 27th Nov., the following were added to the recipients of 20 guineas annually:—

WILLIAM WILLIAMS, of Birmingham.
THOMAS FENNELL, of Lambeth.
WILLIAM SEAGER, of Spitalfields.
ANNIE HORTON, of Handsworth, Birmingham.
ELIZABETH FRITH, of Hatton-garden.

Total number of annuitants..... 18.

THE GENERAL TELEGRAPH COMPANY—(Under Royal Letters Patent) are enabled to EXECUTE, by CONTRACT or OTHERWISE, the most approved ELECTRIC TELEGRAPHS, with the best insulation yet attained.

Applications for terms, &c., to be made to the secretary, at the company's offices, No. 9, John-street, Adelphi, London.

THE COMBINED VAPOUR ENGINE.

Numerous as are the improvements in the steam-engine, and which we are called upon weekly to notice, there appears to be at present no bounds to the mechanical and chemical methods by which motive-power is obtainable; and as we begin to feel ourselves somewhat independent of that hitherto all-powerful agent—the vapour of water—so shall we begin to apply other sources of great mechanical advantage which are evidently within our reach.

In the application of steam, as a motive power, the great desideratum is to obtain the maximum of force, with the least possible consumption of fuel; this great point has occupied the attention of mechanics of all grades, from the days of Watt to the present time. In the operation of the steam-engine, as at present constructed, dependent entirely on the vaporization of water, an enormous expense is continually occurring, in waste of fuel, radiation of caloric, and destruction of the boilers, consequent on the high temperature to which it is absolutely necessary to raise the steam for the purposes for which it is intended. We were yesterday much pleased with an inspection of an engine on a principle by which steam, of even low pressure, after having done its duty on the lower side of the piston, passes into a chamber in which are a number of tubes, connected with a reservoir of chloroform (perchloride of formyle). The low temperature at which this liquid may be vaporized, gives a power to this otherwise useless steam, which is superior to the steam itself in its first application. The principal parts of the engine consist of two chambers, and two cylinders and pistons; one chamber and cylinder is appropriated to the action of the steam from the boiler, the other chamber and cylinder to the action of the chloroform. The *modus operandi* is this:—The steam from the boiler being admitted to the steam-cylinder, immediately forces up the piston; having done this duty, it is, by the opening of a valve, admitted into a reservoir in which are a number of small tubes connected with a reservoir of chloroform, which it instantly vaporises, and by this action becomes itself condensed; the vaporization of the perchloride of formyle acts immediately on the upper surface of the piston and gives the downward stroke, and these alternate movements being continued, constitute something like "perpetual motion," could they be carried on without the necessity of keeping up the heat by artificial means.

From a close attention to the working of this engine, and carefully noting the gauges which are attached to the several parts of the apparatus, indicating the pressure of the steam in one cylinder, and that of the chloroform in the other, we have no hesitation in stating our impression, that an increment of steam-power in the steam-cylinder, by this arrangement (say one), will give a power in the chloroform department of "three;" and the result will be found, that the same amount of power may be obtained, in comparison with the steam-engine, with a saving of something like 50 per cent. This engine is well worthy the notice of every engineer connected with the present mode of arrangement of the steam-engine. It appears to us to offer a wide field for improvement, as if the more volatile liquids known to us can be thus economically vapourised by the aid of *steam*, we see no obstacle in the way of their being vapourised to useful purposes by other applications of heat, without the aid of steam at all. The engine we yesterday inspected worked without the slightest vibration, and appeared to be most successful. The steam employed was from a pipe, through which it passed, after working a 10-horse power engine attached to the premises, and that waste steam was only admitted through a 2-in. tube, with the valve on half turn. We are promised some particulars of the original engine on this construction, which has been at work at Lyons for the past five years, with the most complete success, which we shall feel pleasure in laying before our readers in next week's *Mining Journal*.

THE PATENT ELECTRIC LIGHT COMPANY.

The various exhibitions of the electric light, which have lately been publicly made, and the complete success which has in each instance attended it, convincing the most sceptical of its perfect adaptability for the general purposes of illumination, fully prepared us for the early issue of the company's prospectus, which we have now before us. The production of a dazzling light by a current of galvanic electricity, through points of carbonaceous matter, has long been known; but, to render this property subservient to artificial illumination, the great desideratum has been to obtain a battery which would give out a constant, regular, and undeviating power, and a mechanical arrangement which will render the brilliancy continuous, and unaffected by any surrounding agency. These important elements of success have been fully attained by Mr. Staite, and the electric light, as produced by him, is simple in detail, self regulating, and economical. The company is provisionally registered; the capital 250,000*l.*, in 10,000 shares of 25*l.* each; and when it is stated that the consumption of materials for artificial illumination in England and Wales amounts, at prime cost, to the extraordinary sum of 11,336,000*l.* annually, we must conclude that there is a wide field open for the introduction of this beautiful and safe light, which there is little doubt, in the course of a few revolving years, will in general supersede every description of light produced from combustion of the hydro-carbons.

The electric light gives out no currents of carbonic acid, or otherwise vitiated air; it is not supported by combustion, and, being devoid of the red and yellow rays, its luminosity and brilliancy are synonymous with the sun. It is applicable to every description of illumination—lighthouses, collieries, railway stations, signal lights, dockyards, harbour lights, quays, churches, public buildings, clubs, exhibition rooms, picture galleries, theatres, manufactories, large and small shops, steam and sailing vessels, it is pre-eminently advantageous; whilst, for private houses, it can scarcely fail to supersede the present systems of lighting—a modified application of the light for this purpose being now in progress. The light is peculiarly applicable for streets, squares, parks, and large open spaces; but as this is a subject which may hereafter require an Act of Parliament, it is not the intention of the promoters to press this further, and lucrative field of operation into immediate use. For railway stations, signals, and night trains, it would be most advantages; and, from its certainty in action, safety, and economy, railway directors will, doubtless, immediately avail themselves of its advantages.

PEAT-CHARCOAL.

The "Irish Amelioration Society" (which was established for the purpose of affording remunerative employment to the destitute peasantry of Ireland, in the preparation of peat fuel and charcoal, and, at the same time, for reclaiming some of the 3,000,000 acres of bog lands in that country by removing the peat), availed themselves, yesterday, of the Smithfield Club Cattle Show, occasioning a large influx of farmers, and other visitors from the country, into the metropolis to test, by public experiments, the deodorising properties of peat-charcoal. The experiments were conducted by Mr. Maugham, and took place in King-street, Portman-square, contiguous to the cattle exhibition. The tests were repeated several times in the course of the day, and a great number of farmers and others attended to witness them, many expressing themselves highly satisfied with the results. The experiments were performed by the admixture of a small portion of peat-charcoal with a quantity of night soil, when the latter almost instantly became thoroughly deprived of its noxious odour, and changed to the colour of green powder, the charcoal manure thus produced being dry and gritty. This deodorant being portable in sacks, has obviously a decided advantage over all liquid disinfectants in point of facility in its transmission from place to place.

Mr. MAUGHAM informed the spectators that the article could be applied to the land by being drilled in rows, or broadcast, and would most effectually communicate to the plants the elements it obtained from the night soil. This charcoal possessed very great absorbent qualities; it continued long to act upon the soil like a sponge, perpetually absorbing from the atmosphere all the elements it contained most favourable for stimulating vegetation, and transmitting them to the plants as rapidly as it absorbed them. The supply of peat for manufacturing charcoal (he said) was altogether inexhaustible, and this charcoal could be sold at a much cheaper rate than the ordinary article could be obtained—the wholesale price of the latter being 12*l.* per ton, whereas this charcoal could be delivered in London at 2*l.* 10s. per ton, including carriage. Some experienced agriculturists, who had used it for their fields, estimated that it barely cost them half as much as guano did. He also adverted to the utility of peat charcoal in smelting operations, and stated that its cheapness would enable us to manufacture our own steel instead of being compelled to procure it, as at present, from Sweden, where the proper smelting fuel had hitherto been far more easily obtainable than here; and the effect of manufacturing our own steel, by means of this charcoal, would of course greatly cheapen the cost of that very expensive and most useful material.

DEPRECIATION OF RAILWAY SHARES.—The average fall in the market prices of 12 of the principal companies has been upwards of 60 per cent. in 3½ years. Taking the month of August for a comparison, we find that in 1845, London and North-Western shares were 252*l.*, and in 1848 114*l.*; Great Western, 246*l.* and 78*l.*; South Western, 82*l.* and 38*l.*; South Eastern, 47*l.* and 22*l.*; Brighton, 80*l.* and 28*l.*; Edinburgh and Glasgow, 87*l.* and 37*l.*; and others in proportion

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 150
3 per Cent. Reduced Ann., 86¾
3 per Cent. Consols Ann., 87⅞ ⅜
3½ per Cent. Ann., 86¼ ⅜
Long Annuities, 8¾
India Stock, 10½ per Cent., 240 1
3 per Cent. Consols for Acct. 87⅝ ⅜
Exchequer Bills, 1000*l.* 2d. 38 41 pm.

Belgian, 4½ per Cent., 71 72
Dutch, 2½ per Cent., 47½
Brazilian, 5 per Cent., 73½
Chilian, 6 per Cent., 84½
Mexican 5 per Cent., 21½
Russian, 5 per Cent., 101½ ⅝
Spanish, 5 per Cent., 11½ ⅝
Ditto 3 per Cent., 24¼

MINES.—The mining share market continues to be fairly supported, and some considerable transactions have taken place during the week; several shares have advanced, and buyers freely appearing. The reaction we anticipated appears to be approaching, and shares which remained dormant at depreciated prices, are sought for at improved figures. Most of the dividend-paying and leading mines are particularly in request, among which we may notice Wheal Seton, South Wheal Frances, South Basset, West Caradon, Condurrow, Trelawny, &c.

At the South Wheal Basset meeting, on Tuesday, a dividend of 5*l.* per share was declared; the profit on September and Oct. workings amount to 648*l.* 7s. 5d.; after payment of the dividend, a balance of 142*l.* 7s. is carried to next account. The mine is represented as looking remarkably well.

East Wheal Rose shares have been done, and although at a considerably less price than quoted a few months ago, yet we have been confidently assured that there is no alteration in the mine, to account for the prices at which they have been lately sold. It is true, we are not guided by any official report, and in its absence we readily furnish such information as we receive, to preclude any unnecessary alarm among distant holders.

Tamar, Tincroft, and Lewis shares, we find have been in free demand, and several transactions effected.

An improvement is reported to have taken place in East Tamar Consols, and a great many shares have changed hands. North Wheal Friendship and East Wheal Josiah Mines, recently commenced in the locality of Tavistock, are being looked upon with some interest, as of good promise, and shares have been done at an advanced premium. The lode in the latter is affirmed to be the continuation of the Devon Great Consols, and some fine stones of copper ore have been extracted during the past few days.

We learn that some large foreign orders have been received for copper during the week, and that near 500 tons have been shipped. Tin is not over abundant in stock, and a fair demand exists. Lead is also in request, for home consumption especially.

Shares in the following mines have been transacted during the week:—East Wh. Rose, Devon Great Consols, West Caradon, Condurrow, Wheal Trelawny, East Wheal Josiah, Bedford United, East Tamar, Wheal Trehane, Kingsett and Bedford, Stray Park, Camborne Consols, Wheal Mary Ann, Trethellan, North Wheal Friendship, Tamar Cansals, Tincroft, Cwm Erfin, Kirkeudbright, Antimony and Silver-lead, Lewis, Mendip Hills, &c.

At the Herodsfoot meeting, held on the 27th Nov., the accounts showed—Labour cost for August and September, 1404*l.* 5s. 5d.; merchants' bills, 364*l.* 4s. 10s.; dues, 88*l.* 2s. 5d.=1838*l.* 12s. 8d.—By balance of last account, 224*l.* 17s. 8d.; calls, 55*l.*; lead ores sold, 983*l.* 1s. 10d.: leaving balance against the mine, 575*l.* 13s. 2d.—In these accounts, credit is taken for only one month's ore, against two months' cost, thereby showing a balance against the company of 575*l.* 13s. 3d. The 90 tons of ore sold at 10*l.* 16s. per ton, on the day of the meeting, will be credited at the next account. No mention is made as to the exact amount of the liabilities of the mine; but we believe they are not less than the sum named by us last week. The committee appointed to communicate with the London adventurers have recommended a call of 2*l.* per share, and that 110 tons of ore be raised from the mine per month, which will, they add, in their opinion, clear the mine of the large liabilities, and the value of shares will greatly increase. We hear that a few of the large shareholders in London sent two experienced agents this week to thoroughly examine, and their report, which we hope to be able to get next week, is satisfactory, and states that 900 tons of ore are standing in the backs, which calculated at 11*l.* per ton, gives 9900*l.* of ore in reserve, and the ends looking well.

With respect to our statement of the Heignston Downs, we have only to assert, that we acted on *official authority* when we stated the mine had not changed hands; and we are now assured, that the arrangements were only completed on Wednesday, the 29th Nov., at a meeting held at the offices on that day, when instructions, by that night's post, were sent down to deliver possession to the agent of the present company.

We learn, that two gentlemen, recently returned from California, and arrived at Southampton by the West India steamer, *Clyde*, confirm in part the late statements of the American journals, as to the discovery of gold in that country; and, as evidence of the fact, exhibited specimens of the metal which they had with them. We never had a doubt of gold being found there; but to the extent represented by our trans-Atlantic contemporaries, we are very credulous. That mica has been mistaken for gold, we are assured; and can state, on the authority of a gentleman, now in London, who is extensively engaged in the gold mines of Brazil, that he has frequently had applications to purchase *gold*, which has proved to be mica. To inexperienced persons the conviction may not be ready; but to a practical and experienced miner the detection is easily made, without any other test than that of the vision.

In foreign mining shares, there has been a fair proportion of business done. St. John del Rey, Imperial Brazilian, and Copiapo, have been in request, and several transactions have come off; and also in United Mexican, Bolanos, Ansturian, and Australian, there have been bargains. The usual monthly letters have been received by the Copiapo Mining Company—the report, which we give in detail, shows the returns for the month at 78 tons of copper ore.

By advices, received from India, we learn that the metal market of the East is improving, especially at Bombay; letters from thence are to the 2d November, and represent copper continuing in steady demand; lead was in request, and that pig-lead was scarce, and much wanted. For tin-plates a steady inquiry. Iron continued scarce and in good demand, especially Swedish bar; British bar in better inquiry, with an upward tendency, the stocks moderate. Bombay letters are to the 19th Oct.; the metal market was not so lively, which appears to be the case with most of the British imports.

The following arrivals of specie have taken place since our last:—The Royal Mail Steam Company's ship, *Clyde*, arrived at Southampton on Sunday last, with the usual West India mails, having on freight, in gold coin and gold dust, $ 341,099 value; bars of silver, value $ 349,000; jewellery, value 300*l.* sterling—total value of specie about 138,000*l.* sterling, also 574 ozs. of platina. The *Washington*, Ocean Steam Navigation Company's ship, arrived at Southampton on Tuesday, from New York, with specie to the amount of $85,000. The Peninsular and Oriental steam-ship, *Iberia*, arrived at Southampton the same day with 47 boxes of specie, of the value of 14,540*l.* The Peninsular and Oriental Company's ship, *Sultan*, arrived on Wednesday at Southampton, having on freight 84 packages of specie, value about 60,000*l.*

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Buddle's West Hartley 15 9—Carr's Hartley 15 6—Chester Main 15 6—Hasting's Hartley 15 9—Holywell Main 15 6—North Percy Hartley 15—Ord's Redheugh 13—Pontop Windsor 14 9—South Pontop 14 9—Tanfield Moor 16 3—Tanfield Moor Butes 14 9—Townley 14—Walker's Primrose 13 3—Wylam 14—West Hartley 16—Wall's End Heaton 16 3—Hotspur 15 3—Wharncliffe 16 3—Bell 17—Hetton 18 3—Haswell 18 6—Lambton 17 9—Stewart's 18 3—Whitwell 16 6—Benson 16 3—Caradoc 17 6—Kelloe 17—Adelaide Tees 17—Coxhoe 15 9—Seymour Tees 16 6—South Durham 16—West Cornforth 16 6—Derwentwater Hartley 15 6—Hartley 14 9—Howard's West Hartley Netherton 15 9—Sidney's Hartley 15 9.—Ships at market, 137; sold, 64.

WEDNESDAY.—Buddle's West Hartley 15 6—Carr's Hartley 16—Chester Main 15 6—Davison's West Hartley 16—Hasting's Hartley 15 9—Holywell Main 15 6—New Tanfield 15—North Percy Hartley 15—Ord's Redheugh 13—Pontop Windsor 14 9—South Pontop 14 3—Tanfield Moor 16—Tanfield Moor Butes 14 9—Townley 14—Walker's Primrose 13 3—Eden Main 17 to 17 6—Hartley 14 9—Sidney's Hartley 15 9—Wall's End Bewicke and Co. 16 3—Framwellgate 16 6—Gosforth 16 3—Hedley 16 3—Hotspur 15 3—Percy Bensham 15 3—Belmont 17 6—Bradpylle's Hetton 17 6—Grange Lyons 17 3—Hetton 18 3—Jonassohn's 15 3—Lambton 17 9—Russell's Hetton 17 9—Stewart's 18 3—Whitwell 16 6—Benson 16 3—Caradoc 17 6—Heugh Hall 16 3—Adelaide Tees 17 6—Seymour Tees 17—Tees 17 9—Whitworth 14 6.—Ships at market, 107; sold, 64.

FRIDAY.—Buddle's West Hartley 15 6—Carr's Hartley 15 6—Davison's West Hartley 16—Holywell Main 16—New Tanfield 15—North Percy Hartley 15—Ord's Redheugh 13 6—Pontop Windsor 14 9—Ravensworth's Pelaw 14 6—South Pontop 14 6—Tanfield Moor 16—Tanfield Moor Bute's 14 9—Townley 14—Wylam 14—West Hartley 16—Wall's End Heaton 16 3—Eden Main 17 6—Braddylls Hetton 17 6—Bell 17—Hetton 18 3—Morrison 16 3—Whitwell 17—Benson 16 6—Caradoc 17 6—Kelloe 17—Adelaide Tees 17 6—South Durham 16 3—Tees 17 9—Cowpen Hartley 15 9—Hartley 15 6—Nixon's Merthyr 21.—Ships at market, 99; sold, 28.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver coin to Hamburgh, 75,425 ounces; ditto to Rotterdam, 37,000; ditto to British West Indies, 140; ditto to Belgium, 22,000; ditto to Calais, 1000—Silver bars to Rotterdam, 88,000—Gold coin to Belgium, 76—ditto to Cape of Good Hope and Madras, 50.

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars..... per oz.	£3 17 9	New dollars..... per oz.	4 5½
„ Portugal pieces.....	0 0 0	Silver in bars (standard).....	0 5 11½

PRICES OF MINING SHARES.

Shares.	Company.	Paid.	Price.
	BRITISH MINES.		
1000	Abergwessin	7	—
512	Albert Consols	1	9¼
1024	Alfred Consols	8½	5
1000	Antimony & Silver-Lead	5	5¼
1024	Ashburton United Mines	8½	10
1624	Balleswidden	9	18
128	Bainoon Consols	25	25
10000	Banwen Iron Co.	6	6¼
1000	Barristown	5¼	1¼
4000	Bedford	2¼	2¼
1244	Birch Tor Tin Mine	9¼	1¼
8000	Binenavon	50	17½
100	Botallack	182	60
120	Brewer	5	7
10000	British Iron, New, regis.	10	13
—	Ditto ditto, scrip	10	10
128	Budnick Consols	52½	35
1000	Callington	19	15
1000	Camborne Consols	5	4
20000	Cameron's Steam Coal	6	1
256	Caradon Copper Mine	9½	2
256	Caradon Mines	22½	16
256	Caradon United	24	5
256	Caradon Wh. Hooper	21	8
1000	Carn Brea	15	95
3000	Carthew Consols	1¼	5
112	Charlestown	220	60
512	Coatlithe Hill	¼	1
500	Comblawn	5½	3
128	Comfort	45	35
256	Condurrow	20	40
2560	Cook's Kitchen	14	2
1000	Coombe Valley Quarry	3½	4½
6500	Cornish Mining Co.	2	2¼-4
20000	Cornwall New Mining	1	1
1000	Copper Bottom	1¼	6½
1024	Cosheen	4¼	20
212	Craddock Moor	23½	5
128	Creeg Brawa	120	100
500	Cubert Mine	12½	—
1000	Cwm Erfin	2½	3
300	D. Prior & Buckfastleigh	—	—
7100	Derwent	8½	5
845	Devon & Courtenay Con.	7½	¾
1024	Devon Great Consols	1	220
1000	Dhurode	2	5
186	Dolcoath	30	15
2560	Drake Walls	5	4
10000	Durham County Coal	45	9
3000	Dyfngwm	10	12½
512	East Alvenney	5½	12½
112	East Caradon	47	47
2048	East Crowndale	5½	2½
512	East Combe Silver-Lead	6½	6½
128	East Pool	15	40
9000	East Tamar Consols	¾	¾
—	East Wheal Albert	1	3
94	East Wheal Crofty	125	250
1024	East Wheal Fortune	2	3
128	East Wheal Rose	50	600
—	East of Scotland Iron Co.	5	1¼
123	East Wheal Seton	14	10
1280	Eagair Lit	1	2
256	Exmoor Wh. Eliza	9	9
512	Fowey Consols	40	45
1024	Freidd Llwydd Mines	1¼	3½
6400	Gadair	2	2
4000	Gen. Mining Co. for Irel.	1¼	1¼
2048	Goldscope Mine	2	2
256	Gonamena	44½	16
128	Goonvrea	4	2
100	Great Consols	1000	250
1900	Great Michell Consols	1¼	¼
256	Great Resugga Moor	11	6
512	Gt. Wh. Rough Tor Con.	18½	11
1200	Grown Slate Company	5	5
256	Gwinear Consols	7	1
6000	Heigaston Down Con.	¼	2½
256	Herodsfoot	18	22
10000	Hibernian	12½	1½
239	Hobb's Hill	6	1½
1000	Holmbush	22	1½
1024	Kingsett and Bedford	¼	—
827	Kirkcudbrightshire	8½	2
2048	Lamberooe Wh. Maria	13	2
252	Lanarth Consols	—	8½
128	Lelant Consols	90	60
160	Levant	—	100
1000	Lewis	16	8
1000	Llwyn Malees	7	7
3600	Llynvi Iron	50	50
256	Lostwithiel Consols	19	14
6000	Marke Valley	10	2
5000	Mendip Hills	3	1
5000	Merionethshire Slate Co.	1¼	2
128	Metha	34	140
20000	Mining Co. of Ireland	7	5
256	New East Crowndale	3¼	2½
128	North Fowey Consols	37	10
100	North Pool	45	500
140	North Roskear	5¼	165
262	North Wh. Leisure	1¼	2
15000	Northern Coal Co.	23	2
128	Par Consols	—	1000
8000	Pennant & Craigwen	2	2½
100	Penrhiw	50	65
1024	Penzance Consols	[illegible]d.	2
512	Plymouth Wh. Yeoland	5½	15
200	Polsalth Consols	5½	4½
2500	Rhoswiddol & Bacheidon	10	10
10000	Rhymney Iron	50	13
10000	Ditto New	7	6½
1000	Rosewall Hill	1	5
	BRITISH MINES—*continued.*		
256	Rosewarva Mines	—	12
2048	Runnaford Coombe Tin	½	10
128	South Caradon	10	300
1100	South Dolcoath	4	5
256	South Friendah. Wh. Ann	20	4
256	South Molton	5	10
256	South Tolgus	10	55
256	South Trelawny	28½	3
2000	South Wales Mining Co.	¾	2½
128	South Wheal Basset	110	135
124	South Wh. Frances	160	230
256	South Wh. Josiah	—	2½
1000	South Wh. Maria	2½	1½
10000	Southern & Western, Irish	2	4
280	Spearne Moor	80	40
256	St. Austell Consols	9	—
94	St. Ives Consols	—	320
128	St. Michael Penkivel	5	10½
999	St. Minver Consols	1	6
1000	Stray Park	43	18
9600	Tamar Consols	3	6
1024	Tavy Consols	4	4
6000	Tincroft	7	5½
1000	Tin Vale	2½	3½
58	Tokenbury	170	10
256	Tollpetherwin	3½	5
256	Tregordan	2	9
256	Trehane	2½	27
5000	Treleigh Consols	6	2
2000	Trenance	3	—
96	Tresavean	10	150
120	Trethellan	5	16
120	Treviskey and Barrier	130	84
288	Trevean	1¼	5
100	United Mines	300	350
256	Wellington Mines	25	20
256	West Caradon	20	118
512	West Fowey Consols	40	12
256	West Providence	9	15
200	West Seton	40	210
—	West of Scotland Iron Co.	240	90
120	West Trethellan	5	30
256	West United Hills	—	4½
512	West Wheal Frances	1½	2
256	West Wh. Friendship	9	8
3725	West Wheal Jewel	11	1½
256	West Wheal Tolgus	21½	6
256	West Wheal Treasury	19	10
1024	Whiddon Mines	4½	4½
5200	Wicklow Copper	5	8½
107	Wheal Adams	79	30
1000	Wheal Agar	—	8
256	Wheal Albert	10	1
240	Wheal Anderton	23	20
128	Wheal Ann	—	50½
512	Wheal Anna Maria	6½	8
1024	Wheal Ash	4½	8
120	Wheal Bal	5½	20
256	Wheal Benny	14½	2
256	Wheal Bleucowe	21	5
256	Wheal Bucketta	20	5
256	Wheal Calstock	5	10
1024	Wheal Coad	1	4
268	Wheal Courtenay	12½	15
256	Wheal Fortescue	6½	3
388	Wheal Franco	27	18
128	Wheal Harriet	45	—
100	Wheal Henry	—	42
1024	Wheal Lawrence	3	3
112	Wheal Margaret	79	250
512	Wheal Mary Ann	5	14½
208	Wheal Mary Consols	60½	8
—	Wheal Penhale	—	12
210	Wheal Prospect	4	7
120	Wheal Reeth	41	150
128	Wheal Rose	60	5
99	Wheal Seton	214	720
180	Wheal Sisters	352	5
512	Wheal Sophia	3½	5
128	Wheal Spearne	10	75
128	Wheal St. Ann	30	35
550	Wheal Trescoll	4	5½
260	Wheal Trelawny	7½	65
256	Wh. Tremaine (St. Ervan)	9½	2½
1024	Wheal Tremayne	9½	2½-3
92	Wheal Tryphena	140	265
1000	Wheal Vincent	1½	6
256	Wheal Vlow (Perranz.)	¼	¼
184	Wheal Vyvyan	—	60
250	Wheal Williams	28½	8
1024	William & Mary North	2	2½
	FOREIGN MINES.		
8000	Alten Mining Company	14½	2
15000	Asturian Mining Co.	13	2½
20000	Australian	2½	3½-4
10000	Anglo-Mexican Co.	100	¼
12374	Ditto Subscription	25	1½
6000	Barossa Range	¼	2
3000	Bolanos	150	2½
2000	Ditto Scrip	15	3½
12000	Brazilian Imperial	23	8½
10000	Cobre Copper Co.	40	13
10000	Copiapo Mining Co.	14	2½
10000	General Mining Ass'n.	20	10
—	Guadalcanal	3½	5½
5000	Kinzigthal Mining Ass.	2	3
20051	Mexican Company	59	—
3000	Mexican & South Amer.	8	¼
5000	National Brazilian	30	3½-5½
104000	N. Brit. Australasian	1	¼
7000	Royal Santiago	10	4
11000	St. John del Rey	15	12½-13
43174	United Mexican	Av. 28½	3½

LATEST CURRENT PRICES OF METALS.

LONDON, DECEMBER 8, 1848.

		£	s.	£	s.	d.
Iron	Bar *a*. Wales	*ton*	4 15	– 5	5	0
	,, London	,,	0 0	– 6	0	0
	Nail rods	,,	0 0	– 7	0	0
	Hoops	,,	0 0	– 8	10	0
	Sheets, single	,,	9 0	– 9	10	0
	Refined metal	,,	3 7	6 3	10	0
	Bars, Staffordshire	,,	0 0	– 6	10	0
	Pigs, ditto	,,	3 0	– 3	15	0
	Welsh cold-blast foundry pig	,,	3 15	– 4	5	0
	Scotch pig *b*, Clyde	,,	2 1	6 2	4	0
	Do. toughened, Wales	,,	4 0	– 4	5	0
	Stirling's Pat., Glasg.	,,	3 0	– 3	5	0
	Rails, average	,,	5 0	– 5	10	0
	Chairs	,,	0 0	– 4	0	0
	Russian, CCND *c*	,,	0 0	– 17	0	0
	,, Archangel	,,	0 0	– 13	0	0
	Swedish Steel, fagt. *d*	,,	0 0	– 15	0	0
	,, ,, kegs	,,	13 10	– 14	0	0
Copper	Tile *f*	,,	0 0	– 78	10	0
	Tough cake	,,	0 0	– 79	10	0
	Chili	,,	0 0	– 70	0	0
Copper	Ordin. sheets, *lb.*		0 0	– 0	0	9
	Old	,,	0 0	– 0	0	7½
Yellow Metal Sheathing			0 0	– 0	0	2½
Tin	Com. blocks *g* ... *cwt.*		0 0	– 3	19	0
	,, bars	,,	0 0	– 4	0	6
	Refined	,,	0 0	– 4	6	0
	Straits *h*	,,	0 0	– 4	4	0
	Banca, for home con.	,,	0 0	– 4	6	0
	ditto for export only	,,	0 0	– 3	16	0
Tin-Plates	Ch., IC *i*, *box*		1 9	– 1	10	0
	,, IX	,,	0 0	– 1	16	6
	Coke, IC	,,	1 6	– 1	7	0
Lead	Sheet *k*	*ton*	17 0	– 17	5	0
	Pig, English	,,	16 0	– 16	5	0
	,, Spanish	,,	14 10	– 15	5	0
	Red	,,	0 0	– 18	0	0
	White ditto	,,	0 0	– 22	0	0
	Shot (Patent)	,,	0 0	– 19	0	0
Spelter	(Cake) *l* on spot		14 15	– 15	0	0
	For arrival	,,	14 15	– 15	5	0
Zinc	(Sheet) *m* export		0 0	– 20	0	0
Quicksilver	*n*	*lb.*	0 0	– 0	3	6

REMARKS.—We are unable to report any improvement in the iron trade this week; on the contrary, the market still exhibits a downward tendency. There is little or no business doing in Scotch pig-iron, which we quote nominally at 41s., sellers, either for all No. 1, or mixed Nos.—cash. Buyers, however, decline to purchase, except at lower rates. No alteration to notice in other metals.

MONTHLY REPORT.

Iron.—Welsh iron continues in limited demand, and the price has considerably declined during the month; sales of good makes having been effected (but it is said not by makers) at 4*l*. 15s. per ton, free on board in Wales: and while 5*l*. to 5*l*. 5s. per ton is the general price asked, every desire is evinced to meet the market, if the doing so would induce orders. Scotch pig-iron in Glasgow is quoted in the market there about 41s., assorted 3*l*. 5s. No. 1, 2*l*. 5s. No. 3, free on board, immediate cash, against storekeepers' warrants or makers' undertakings; but the makers price for early delivery is, according to make, from 2s. to 4s. per ton above this price. But little progress has yet been made towards the accumulation of stock at Glasgow, and a fair business is done daily for consumption. There is not much demand for export, as the late American advices announce a decline there with some increase of stocks. In the absence of export orders, an increase of stock in makers' hands is expected during the winter. Dealers, both here and in Liverpool, are, however, but sparingly supplied. In Swedish iron there is scarcely any business doing; the stock here is small.

Swedish Steel is held at quoted prices, but is in slight request; there is a fair quantity in stock here, and Keg of good quality might be had at 13*l*. 5s. per ton.

Copper is in fair demand; the shipments to India during the last month, it will be perceived, are considerable, amounting in all to 473 tons.

Tin.—English common is in fair demand. Refined continues extremely scarce, and as to some extent a substitute Banca tin, admissible to home consumption, is held at 86s., while for Banca tin imported from Holland, and which can only be sold for exportation, the price asked is 76s. The present stock of Banca and Straits is about 300 tons.

Tin-Plates are still scarce, while the demand continues good, very large parcels having been recently purchased, chiefly for the United States.

Lead.—English is in moderate demand for home consumption, but not for export. Spanish of middling quality has been sold at 14*l*. 10s. per ton, duty paid, and for superior qualities 15*l*. 5s. per ton is asked.

Spelter on the spot is in slight request, and some small business has been done at 14*l*. 15s. per ton, and for larger quantities it might be possible to get on at a shade lower. The present stock is 3550 tons, against 2234 tons at same period last year. For Spring delivery 15*l*. per ton is asked, at which figure, and 14*l*. 15s., business has been done.

GLASGOW, Dec. 7.—The lowness of prices has caused more inquiry after pig-iron this week, and the market is not seemingly so yielding. A fair business has been done for delivery in the spring. The price for present delivery may be quoted at 41s. for mixed Nos.—cash.

LIVERPOOL, Friday.—The firmness noticed in our market, last week, has rather strengthened during the present, and a fair extent of business is doing. For some descriptions prices have stiffened a little, particularly for Scotch pig, which now commands 41s. 6d. to 42s. per ton, net cash. There is no change to report in tin, copper, or lead.

LEAD ORES

Sold at the Mine.

Mines.	Tons.	Amount.	Purchasers.
East Wheal Rose	28	£13 0 6	R. Michell & Son.
ditto	7	8 4 6	Sims & Co.
ditto	36	14 2 6	R. Michell & Son.
ditto	11	7 5 0	ditto
Sold at Aberystwith.			
East Logylas	65	£ 9 0 0	Walker, Parker, & Co.
ditto	65	8 18 0	Newton, Keates, & Co.
Sold in London.			
Callington	74	£16 8 6	Tamar Company.

BLACK TIN

Sold on the 24th Nov., to the Treloweth Smelting House.

Mines.	Tons cut. qr. lb.	Amount.
West Wheal Providence	6 15 3 18	£339 15 6
ditto	1 11 3 4	74 6 0
Total—9 tons 7 cwts. 2 qrs. 22 lbs.—Amount of money, £414 1s. 6d.		
Sold on the 24th Nov., to the Mellanear Smelting House.		
Wheal Tremayne	11 6 2 23	£301 11 8
ditto	3 13 2 27	199 2 0
ditto	1 4 1 19	57 19 10
Total—16 tons 4 cwts. 3 qrs. 13 lbs.—Amount of money, £758 13s. 6d.		
Sold on the 29th Nov., to the Chyandour Smelting House.		
Wheal Tremayne	4 14 0 11	£208 4 0
ditto	1 19 3 1	100 8 0
ditto	0 11 2 14	27 12 0
ditto	0 6 0 21	13 10 6
Total—7 tons 11 cwts. 2 qrs. 19 lbs.—Amount of money—£349 14s. 6d.		
Making altogether 32 tons 4 cwts. 0 qr. 26 lbs.—Amount of money, £1522 9s. 6d.		

Mines.	Tons.	Price per ton.	Purchasers.
Great Polgooth	47½	£45 0 0	J. H. Enthoven and Co.
ditto	1½	38 0 0	ditto

COPPER ORES.

Sampled Nov. 22, and Sold at Andrew's Hotel, Redruth, Dec. 7, 1848.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
East Wh. Crofty	100	£9 13 0	Tincroft	49	£9 15 0
ditto	97	4 6 6	ditto	44	3 12 0
ditto	96	5 7 6	ditto	40	1 10 6
ditto	67	4 8 6	ditto	39	6 1 6
ditto	63	5 7 6	ditto	35	4 1 0
ditto	52	3 16 0	Condurrow	75	3 4 6
ditto	49	1 11 0	ditto	73	2 4 0
Dudnance	66	6 1 0	ditto	61	10 3 0
ditto	59	6 6 0	ditto	39	7 9 6
ditto	58	6 4 0	ditto	34	4 3 0
Longclose	51	4 10 0	ditto	20	1 0 6
North Pool	112	3 15 6	South Wh. Basset	74	3 11 0
ditto	111	3 8 6	ditto	65	3 15 0
ditto	110	4 9 0	ditto	59	4 16 0
ditto	99	3 9 6	ditto	46	7 16 0
ditto	98	3 14 0	ditto	45	7 16 0
ditto	50	3 2 0	ditto	1	16 12 6
Wh. Seton	95	4 3 6	Fowey Consols	81	4 19 0
ditto	79	4 16 6	ditto	80	6 0 4
ditto	74	5 5 6	ditto	63	4 11 0
ditto	73	5 0 0	East Pool	93	3 19 6
ditto	72	4 13 0	ditto	61	3 16 0
ditto	68	4 3 0	ditto	56	2 18 6
ditto	44	3 11 0	Dolcoath	62	4 8 0
ditto	25	1 14 0	ditto	51	5 17 6
Camborne Vean	74	5 9 6	ditto	50	2 11 6
ditto	64	4 8 6	South Wh. Frances	72	6 5 6
ditto	62	1 10 6	ditto	59	10 3 0
ditto	59	4 6 0	Wh. Mary	65	5 10 6
ditto	56	4 2 0	ditto	17	6 12 6
ditto	52	3 9 6	Wh. Bucketts	46	3 5 6
ditto	47	3 0 6	ditto	20	4 8 0
ditto	40	4 3 6	Wh. Busy	42	2 9 6
ditto	31	3 17 6	Andrew & Nangiles	10	4 5 0
Tincroft	80	2 11 6	ditto	18	4 19 6
ditto	53	2 11 0			

TOTAL PRODUCE.

East Wh. Crofty, Dudnance, Longclose	758	£3269 5 6	Fowey Consols	224	£1183 12 0
North Pool	580	2154 2 0	East Pool	210	765 5 6
Wh. Seton	530	2346 17 6	Dolcoath	163	701 3 6
Camborne Vean	485	1876 4 0	South Wh. Frances	131	1050 13 0
Tincroft	340	1073 19 6	Wh. Mary	82	471 15 0
Condurrow	302	1474 15 0	Wh. Bucketts	66	238 13 0
South Wh. Basset	290	1516 1 6	Wh. Busy	42	103 19 0
			Wh. Andrew & Nan.	37	170 6 0

Average Standard ..... £ 94 3 0 | Average Produce 7¼

Average Price per ton £4 6 0

Quantity of Ore ..... 4240 tons. | Quantity of Fine Copper, 319 tons 4 cwts.

Amount of Money £18,396 12 0

LAST SALE.—Average Standard ..... £ 93 2 0.—Average Produce 7¼

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	191	£ 877 11 3
Vivian and Sons	976	3721 13 3
Freeman and Co.	446	1764 2 0
P. Grenfell and Sons	656	3082 3 0
Sims, Willyams, and Co.	594	2570 7 6
Williams, Foster, and Co.	999	4749 1 3
Schneider and Co.	378	1631 13 9
Total tons	4240	£18,396 12 0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carn Brea 849—Tywarnhayle 610—Par Consols 350—Levant 207—Wheal Tremayne 164—Wheal Agar 125—West Wheal Seton 123—Charlestown United Mines 90—Wellington Mines 71—Bastian's ore 48—West Wheal Providence 23—Providence Mines 12—Culliom's ore 12—Wheal Venture 8.—Total, 2692 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels—Devon Great Consols Josiah, Wheal Fanny, Maria, and Anna Maria 1534—West Caradon 262—Fowey Consols 256—Wheal Friendship 214—Marke Valley 188—Bedford United 104—Wheal Pink 61—Phœnix Mines 38—Holmbush 30—Gonamena 26—Wheal Williams 20.—Total, 2722 tons.

COPPER ORES

Sampled Nov. 15, and Sold at Swansea, Dec. 7, 1848.

Mines.	Tons.	Prod.	Price.	Mines.	Tons.	Prod.	Price.
Cobre	63	23¾	£15 3 0	Chili	42	52¾	£34 14 0
ditto	55	22¾	14 18 6	ditto	27	23¾	16 6 0
ditto	45	23¼	14 13 0	ditto	50	43½	27 17 6
ditto	79	23¾	15 8 0	ditto	49	42¾	27 6 0
ditto	70	23¾	15 0 6	ditto	41	27¼	18 4 0
ditto	104	15¼	9 5 6	ditto	40	27½	19 3 6
ditto	101	14¼	9 1 6	Knockmahon	104	7¼	4 17 0
Berehaven (Kel.)	121	11¼	7 15 6	ditto	97	9¾	6 11 0
ditto	108	11¼	7 7 0	ditto	45	10	6 12 0
ditto	99	10½	6 17 0	ditto	30	10	6 7 0
ditto	94	10½	6 17 0	Copiapo	83	27¾	19 4 6
Burra Burra	72	30½	21 17 0	ditto	82	27½	18 18 0
ditto	71	30	21 7 0	ditto	66	27¼	19 10 0
ditto	55	28¾	21 7 0	Princess Royal	51	28	19 4 0
ditto	49	29¼	21 1 6	ditto	11	23	16 4 0
ditto	89	32¾	23 1 0	Kapunda	62	24¾	16 14 0
ditto	56	32¾	22 15 6	West Dolfrwynog	20	2¾	1 3 0
Chili	55	22¾	15 8 6	ditto	19	2	0 18 0
ditto	43	53¾	34 5 0	ditto	12	2¾	1 0 0

TOTAL PRODUCE.

Cobre	517	£6584 2 0	Copiapo	231	£4432 9 6
Berehaven (Kellogue)	422	3056 12 6	Princess Royal	62	1157 8 0
Burra Burra	362	7931 6 6	Kapunda	62	1035 8 0
Chili	347	8463 5 6	West Dolfrwynog	51	52 2 0
Knockmahon	276	1627 5 0			

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
English Copper Company	99	£ 678 3 0
Freeman and Co.	52	924 2 0
Grenfell and Sons	272	3088 5 6
Sims, Willyams, and Co.	163	3408 7 0
Vivian and Sons	658	9224 16 0
Williams, Foster, and Co.	767	11019 9 0
Schneider and Co.	319	5985 9 6
Total tons	2330	£34,339 19 0

At Swansea, for sale December 28.—Cobre 110, ditto 100, ditto 96, ditto 91, ditto 82, ditto 77, ditto 52, ditto 51, ditto 30, ditto 78, ditto 48.—Burra Burra 72, ditto 70, ditto 65, ditto 55, ditto 58, ditto 54.—Berehaven 116, ditto 110, ditto 97.—Cuba 110, ditto 101, ditto 100.—Copiapo 76, ditto 74, ditto 71, ditto 58.—Knockmahon 68, ditto 54.—Ballymurtagh 31.—Total quantity of ore to be sold, 2275 tons.

CWMBRAIN PATENT IRON REFINERY.—The

PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a

NEW PATENT PROCESS,

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.
2. For TIN-PLATES, commonly called COKE PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

NOTICES TO CORRESPONDENTS.

National Brazilian Mining Company.—"E. J. W." (Northampton).—A *mark* is equal to 7 ozs. 7 4-7th dwts. troy. We believe it is fully expected that the last instalment, which has been marked on those shares on which it has been paid, will be sufficient for all purposes, without further call; the mines now getting into a profitable state of working. There has been no dividend paid for a period of at least 13 years.

"M. B." (Holland-street.)—There have, we believe, been no chemical or mechanical difficulties in carrying out Mr. Drayton's silvering process. A question has, however, arisen, whether it would be more desirable to carry on a retail business, or one entirely on a large scale, and to grant licenses to others? The latter, we believe, has been decided upon: and arrangements are now being made for the necessary capital, the fitting up premises, and other preliminaries.

Runnaford Coombe Tin Mine.—A correspondent ("J. W.," Pitfour) requires—1. The price of shares in May last.—2. Whether the 2048 shares are all taken up.—3. Has any dividend yet been paid—and is it a safe and profit-promising speculation? Perhaps the purser, or some one connected with the mine, will furnish the particulars

"H. & K." (Exeter).—We will endeavour to obtain the information, and forward it.

Gadair Mining Company.—We have received a long communication from Mr. Moss, solicitor to this company, in answer to two letters from Mr. Taunton, the late secretary, published in our Journal. Mr. Moss rebuts the allusion of Mr. Taunton, to the office held by him, of solicitor, being obtained by jobbing; and enters very fully into a series of charges against Mr. Taunton—as to withholding the books of the mining offices; his knowledge of certain leases being executed, and that not taken up, being from its cost exceeding the sum stated by him; his being indebted to the offices, &c.—but the whole is of so personal a nature as to preclude its appearance, otherwise than in our advertising columns.

Remington's Bridge—"L. B." (Redruth).—We have no knowledge of Mr. Remington, and should not have attached the least importance to his ridiculous letter, had it not obtained publicity through so respectable a medium as Hunt's *Merchants' Magazine*—thus giving it a character it by no means merited.

"G. V. D."—A company is in process of formation, by which an opportunity will be afforded for the effectually testing Sir James Anderson's carriage, in connection with many other important improvements in the economical construction and working of railways.

Cunningham and Carter's Railway.—We think there is no doubt of the model being ready for exhibition before Christmas; the delay has latterly been caused in obtaining a suitable boiler for the steam-engine, all the other apparatus having long been ready. A new one, however, is now constructed, and we may expect the public to be admitted in a few days.

"M. W. B."—In some observations in our correspondent's communication on "Improvements in Copper Smelting," in last week's Journal, we find his meaning was not correctly conveyed—"present monopoly" should read "present mode of operating;" and, instead of a "clique," he spoke of the several companies as separate and distinct from each other.

Paul Rabey, Jun., v. W. Trenery.—In reply to "R. W.," we can only state that the cause is likely to be heard on Monday, the 11th inst., in the Court of Exchequer. We recommend him to be present, as, no doubt, the evidence afforded will be at least amusing, if not instructive. We should think that the *expose* will benefit legitimate mining; while, at the same time, if the evidence be gone fully into, we can well conjecture the result. We are not aware whether the plaintiff has subpœnaed any adventurer in the West United Hills Mine from Taunton, as speaking to character.

The continuation of the series of papers on the "Bank Charter Act of 1844, and the Industrial Interests of the Country;" and on the "Metallurgical Treatment of Ores," are necessarily postponed.

Received.—B. A. R.—J. W. Hodgetts—W. Radley—J. H. Arnold—X. (Truro)—H. J.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, DECEMBER 9, 1848.

In directing attention to the improved state and improving prospects of the tin trade of this country, we have very great satisfaction in being at the same time able to announce that the improvement is based upon real causes, and not upon any merely speculative operations. The circulars of the leading metal brokers assert that refined tin is scarce, and common tin in brisk demand.

The true explanation of the matter is to be found in the fact, that the production of tin ore in this country has been very limited, in consequence of the low prices which have prevailed for a long time past. Hence a most depressing influence upon the miner, who could not obtain a remunerative return, nor find any encouragement to continue his risk. Mine after mine has been stopped—works of trial have been checked, or totally abandoned. The best reserves have gradually been exhausted, and very little new outlay upon tin mines has been made.

A careful computation of the quantities of black tin, or tin ore, raised at all the different mines in Cornwall, has lately been drawn out, which shows a considerable falling off during the last 18 months; while the consumption of the article of met

quantity, if any quantity at all, of equity into the court, upon whose attention it, in that case, obtruded itself. But when, subsequently, we learned that there were marked symptoms of a guilty consent between the two corporations, to do things not necessary to be done, and also of a guilty concealment of things, which, from clean hands, would have received instant publication, then we were compelled to change our opinion, and to admit, that an application to a court of equity to disentangle the involved interests, and to declare the just rights of the parties, was, of all things, desirable and expedient. Well—an application has been made, but the Judge, in the last resort, has founded his decision on no such considerations as these—he has climbed up to his judgment by no such scaffolding as this—the decision has been had generally, without reference to the merits—the leading idea of the LORD CHANCELLOR being, that he ought to discourage applications to Chancery, by shareholders in joint-stock companies, as against the managers, for a settlement of their disputes. This may be true enough, and may, in some measure, lessen litigation in the equity courts of Westminster Hall. But, wherever individuals think they have endured a specific wrong, they will seek a specific remedy, and instead of working that out by a bill or an injunction in Chancery, they will seek to obtain it by an action at law, and the verdict of a jury—litigation, in fact, will not be lessened, but directed into new, and, perhaps, into more objectionable channels. The two Chancery Courts seem strangely at odds with themselves, with a full statement of the facts of the case before them, much more, indeed, than we have differed from ourselves, with the facts very partially revealed. The VICE-CHANCELLOR, for instance, overruled the demurrer on account of the resolution of the 11th February, by which the property of the company was vested in trustees for sale, and the liquidation of the company's debts. But the LORD CHANCELLOR thinks this neither an excess, nor an improper use of the authority vested in the court of assistants, and so thoroughly within their province under the charter, as not to be a fault, nor to furnish a single peg upon which the bill filed against them can be rested.

His Lordship also thinks that almost any Act of the court of assistants, which subsequently receives the confirmation of a meeting of the shareholders, will be perfectly valid, whatever individual wrong may arise out of it, and however alien to the spirit of those orginal provisions which were embodied in the statute of 1691, by which the company was incorporated—that is, that the vote of the shareholders will skin over all the wounds, individual and general, which may result from the mismanagement of the company's affairs, or the misappropriation of its powers. His Lordship thinks, also, there is no departure from the just administration of the company's affairs, in permitting the conversion of preferential shares into debentures, and of debentures into loan notes, and that the plaintiff's bill is defective also—in having made those who are naturally and properly defendants, plaintiffs in the suit—the VICE-CHANCELLOR differing, *two calo*, and, as it appears to us, upon all the points from his Lordship. The result of the whole is, that the bill is dismissed—not so much upon its merits, as because the presiding judge considered it a fair occasion to administer a little reproof to some of the suitors of his court. It would, as it appears to us, have been the far more preferable course to have decided one way or the other the points raised in the bill, and not to have sent the case out of court without an adjudication—clear, luminous, and lawyer-like—upon the numerous allegations embodied in it. The decision is less, in fact, upon the bill, which was the substantive matter of examination, than upon the impropriety of applying to the court, under the circumstances, for a remedy.

We are glad to find that some of the principal shareholders in the NORTH BRITISH AUSTRALASIAN COMPANY, alive to the very unsatisfactory position in which their property is placed, have taken up the subject seriously, and that a meeting will soon be called in Aberdeen, at which a plan will be proposed for the future management of the company's affairs. We sincerely hope that their laudable exertions will succeed, and that they will have that support from the proprietors generally which the urgency of the case demands, and in which, indeed, it is the evident interest of all to co-operate. Let each individual partner reflect on *his own* position in the matter—let him bear in mind that he is *personally* involved in the question—and he cannot fail to be convinced that it is high time that his property should be more efficiently managed. The present system has been carried on long enough, and any change that takes place can scarcely be but for the better.

We apprehend that the meeting about to be held is simply for the purpose of considering the best course to be pursued under the circumstances. We would recommend those taking an active part in the matter, to have their plan definitively decided previous to the meeting, and to have a circular (stating the particulars, and the necessity for adopting some such mode as that suggested) printed and circulated *some days beforehand*; a place of publication being advertised, at which it could be applied for. The partners would then be better able to judge of its feasibility, and be prepared to support it, or otherwise, according to their opinion of its merits. After that, every exertion should be made to obtain a majority at the next annual meeting for the election of directors; and, if successful, the greatest care should be observed in selecting persons well qualified for the respective offices to which they might be elected. We learn, on inquiry, that the present mining captain employed in the colony, is, undoubtedly, an excellent man for conducting the operations of the mine, although he may not have much knowledge of the quality of the ore, nor capable of ascertaining it by assay. A first-rate person should, therefore, be sent out for that purpose, with whom arrangements should be made for the benefit of his services.

There is one point to which we particularly wish to direct attention. We cannot help thinking that far too great importance has been attached to the affair with Messrs. WHITAKER and HEALE. The opposition of the company to the claim of those gentlemen to the grant between high and low water-mark, has done the former much greater injury than ever the latter would have done them, had some amicable arrangement been agreed to. We had an opportunity of conversing on the subject with Mr. WHITAKER, before he last left England for New Zealand, and we are convinced that on his part every reasonable concession would have been made. He had sunk a shaft, which was entirely surrounded by water at high tide, and which was protected from the sea by a strong wall, like a chimney, and from which he had raised about 500 tons of ore, and so anxious was he that all his operations should be known, and it should not be suspected he went beyond his boundaries, that he was quite willing to propose that the company's agent should periodically the shaft and levels. We repeat that an amicable arrangement with inspect them, accompanied with reasonable restrictions and concessions on both sides, would have been fully as advantageous to the company as to those gentlemen. We hope this point will be considered, and an end put to an unprofitable and, indeed, in itself, an insignificant dispute.

We briefly noticed, in our last Number, that the annual meeting for the election of candidates to the benefits afforded by the IRON, HARDWARE, AND METAL TRADES' PENSION SOCIETY was held on Monday, the 27th Nov. On that occasion the society was enabled to add five individuals to be partakers of its benevolence, and to obtain which there were 13 candidates, the particulars of which will be found in an advertisement in another column. It is highly gratifying to find, that, notwithstanding the fluctuations, and, at times, even ruinous depression, to which the iron trade has been subject, during the past few years, the funds of the society have every succeeding year been gradually increased; and the interest taken in the progress of the institution has been kept alive by all classes in the several branches of the iron trade. There cannot be a more convincing proof of the uncertainty and mutability of human affluence, and the blessings conferred by such institutions on those who, from totally unforeseen causes, have fallen from a state of comfort, and even affluence, to a comparative state of indigence, than the characters of many of the parties who are now recipients of the bounty of this society, and which, in many cases, they subscribed to, more from feelingsof humanity towards their fellow-creatures, than from any expectation of ever drawing on its funds themselves. One was once a member of one of the most affluent iron firms in London; another held the appointment of smith to the Government, and generally employed about 100 hands; two are widows of master manufacturers, who joined the society at its commencement, little thinking their wives would ever require its assistance; while no less than eight have been in respectable business as ironmongers, but, from unforeseen misfortunes, have been broken down. In the wide range of benevolence which this institution takes, these parties have all found refuge; and we sincerely recommend it to the notice of all connected with the iron trade, as richly meriting their consideration and support.

The directors of the ST. JOHN DEL REY MINING COMPANY have declared a dividend of 17s. 6d. per share, for the 6 months, ending the 31st August, being 7s. 6d. per share more than at the same period of last year. This division of profits amounts to 9,625*l.*, and is on 11,000 shares, which are now quoted at 12*l.* to 13*l.* each, and consequently equal to 14*l.* per cent. per annum, at the present value.

By reference to the circular announcing this satisfactory state of things, it appears that the prosperity of the company is not fully demonstrated by this dividend, and that in reality the position of their financial affairs would have enabled the proprietary to have received just double the amount, or at the rate of 28*l.* per cent. per annum, for we find that the sum of 9,000*l.* has been deducted for "drafts running from Brazil, which do not come legitimately into the present statement," inasmuch as these drafts are irrespective of the accounts prior to Aug. 31; there is the production of both September and October to place against them, and the value of the gold raised in September alone was 8000*l.*, or within 1000*l.* of the total amount of the bills. The directors, however, have wisely, we consider, determined on the formation of an ample rest, or reserved fund; not that there is the slightest apprehension, we are assured, of any falling-off from the returns, a gradual increase rather being anticipated, but that they may have the power of keeping up a regular dividend, and so augmenting it as the improved position of the company may warrant. The present rest is made to appear as 4089*l.*, but in fact it is 13,089*l.*, for the reason already stated; and the balance of profits to the end of Aug., from which the dividend is to be paid, is 22,714*l.*, instead of 13,714*l.*, as represented in the circular. The cash at the banker's is 3855*l.*; bullion at Falmouth, 13,359*l.*; and securities, 5500*l.*, which, we understand, consist of railway debentures at 5 per cent., making the total of 22,714*l.*

The total produce of the mines for the six months was 38,570*l.*, from which there is deducted 2694*l.* for duty at the mine and export, and 22,604*l.* for general expenditure—leaving the gross profit at 13,272*l.*, which, for the same period of last year, was 9970*l.*—showing, consequently, an increase of 3302*l.* in 1848 over 1847, although there is an augmentation of no less than 3362*l.* in the item of general expenditure—in fact, the true improvement in the value of the produce for the six months in 1848, was 6664*l.*, as compared with the same period in 1847. The value of the gold raised in March, 1848, was 6510*l.*; in April, 5901*l.*; in May, 6402*l.*; in June, 5409*l.*; in July, 6817*l.*; and in August, 7531*l.*—being an improvement, as compared with 1847, of 1703*l.* in March; of 945*l.* in April; of 1302*l.* in May; of 199*l.* in June; of 1232*l.* in July; and of 1769*l.* in August.

It is encouraging to lay before our readers such reports, more especially when in reference to British exertions in foreign lands, for the production of articles not obtainable within our own dominions—in this case it is for the obtainment of gold. We use our best endeavours, at all times, to encourage home mining enterprise, and should, indeed, be pleased to announce the discovery of gold in any part of this empire; but as such has never yet been done to any useful extent, it must be a source of public satisfaction to find the exertions of our capitalists rewarded, as in the instance of the St. John del Rey Mining Company. There is every reason to believe that they have come on an extensive deposit of this valuable metal, and if the returns continue to increase as they have done for the last few months, there can be no doubt as to the beneficial results to the shareholders.

The proceeding in the courts of law and equity, in the past week, a brief notice of which will be found in another column, call for some slight remarks, as they would appear to us to involve questions of moment, which may very seriously affect our mining interests. We have ever been led to consider that protection was secured to the mine adventurer when mines were worked on the Cost-book System, and that a court of equity (one of the last resources) would have afforded to the humble his rights, and where, as we have been told, "might cannot overcome right." Such, however, we regret to say, if we read the remarks made by the LORD CHANCELLOR and the CHIEF BARON of the EXCHEQUER, appears not to hold good with the opinions they entertain, as the decree of the one, and the instructions to the jury from the other, are at variance with those rules which we presumed to have been acknowledged and established.

It is evident, however, that we were wrong in the conclusion at which we had arrived; and the cases to which we have referred afford conclusive evidence on that point, although we are not prepared to admit the correctness of the decisions arrived at. It does seem somewhat strange that, despite the arguments of counsel, and considering, moreover, the heavy fees paid them, that we should presume to offer an opinion. We have oft observed, that we are not learned in the law, but we claim to ourselves a knowledge, or at least a conception, of what is due between man and man. We are, however, travelling away from the cases immediately under notice, and, therefore, at once proceed to investigate them, in the hope that the attention of our readers being directed thereby, they will take measures to avoid the pit into which others appear to have fallen from want of caution, or the manifestation of over-confidence.

In the first case, that of the Copper Miner's Company, which came before the LORD CHANCELLOR on the 5th inst., without entering on the merits of the case which are treated on elsewhere, we find that the LORD CHANCELLOR, in giving judgment, stated that, in a company of this description, the votes of the majority must bind the minority—an axiom, we believe, universally admitted, except when fraud, concealment, misrepresentation, or the exercise of powers without due authority, is proved to exist—in either or any of which cases, we believe that the court of equity has ever been considered the court of appeal, assuming that the injured party had justice (miscalled, equity) on his side. His lordship, however, tells us, that if a court of equity (query, justice) was to assume jurisdiction in matters where the majority may have determined upon certain points, the court could not entertain any question raised by the minority; we will, however, quote the report now before us:—"If a court of equity was to assume jurisdiction in such matters, it could not do so without opening the door to all parties complaining of proceedings in joint-stock companies, or under deeds of partnership, who, although a minority of the body, might wish to control the proceedings of the majority."

It will be found, moreover, that his Lordship stated, that the complainants had the power of seeking a redress of any grievances they laboured under by appealing to their co-proprietors. Let us for a moment consider the objects for which the Court of Chancery was constituted. It is well known that, in our relations in life and transactions in the world, it often happens, that strictly in accordance with the laws as laid down and administered, that however serious may be the ill of which the plaintiff has cause to complain, he is told that the "law," strictly read, is against him; but he will have relief in a court of "equity." Supposing that the plaintiff has nerve, with the prospect of a long life, and, moreover, a lengthened and well-filled purse, he prosecutes the matter in the Chancery courts; while we must bear in mind that, unless he possesses these advantages, he cannot expect to obtain that remedy which it is in the power of the court to award him. It is on the assumption, that the party so applying to the court, having justice on his side, is able to make out his case; but we are told by the LORD CHANCELLOR.—"No matter how right you are, you form one of a minority—we cannot give you redress." If this be equity, then we require no court of the kind, or a chancellor, to pronounce his dictum, or opinion.

Let us just take a case—and, as it is founded on fact, it serves the purpose well, as illustrative of our meaning. A possesses a mine, in conjunction with others, which he sells to B, reserving a certain share. A code of rules, or regulations, are entered on the cost-book, and a committee are appointed to carry them into effect; and, within some three or four days after such appointment, or powers, being vested in them, they think fit to make a call (say, 2000*l.*), at the same time having 1000*l.* in their hands. We will also assume, for our argument, that, at the time of making such call, the expenditure on the mine did not exceed 50*l.* per month, nor was there any immediate prospect of increase thereto—hence the balance in hand might be considered equal to 12 months' cost, at least after allowing for extras. The call being made while it is manifest such is unnecessary, we will next assume, that the majority, being wealthy men, and holding the greater portion of the shares, adopt this course for the purpose of enforcing the rule, adopted and entered in the cost-book, of forfeiting all shares on which the call shall not be paid by a given day. In so doing, they acquire a power of enchancing their own stake in the concern, by the forfeiture of the shares of others unable to meet the call—while there is no necessity for such being made, nor can it be justified. We have simply put this case, which we should, in case of need, have no difficulty in proving. Let us then suppose that the shares in arrear of the payment of the call so improperly made, as we would contend, were forfeited and sold at 20 times the amount which was claimed upon them, and the surplus taken up by certain parties, and applied to their own uses, and not placed to the credit of the adventurers. What then is the course to pursue? Is it not a court of equity?—We should say, yes; but unfortunately we find the LORD CHANCELLOR declares, that the court is not instituted to protect the minority, or injured party.

We will, however, pass over from this to the other case referred to, and reported in our columns. Somewhere about the latter part of 1845, a party (Mr. CARNE) purchases a mine, known as Wheal Lovell, for a certain sum—say, 7500*l.*—and having an adjoining property, he attaches it thereto, at a price of some 4000*l.*, and proposes to establish a company, consisting of 500 shares, who are to pay, by instalments, the purchase-money of the same, and provide the necessary funds for carrying on the operations; or, on the other hand, who would be entitled to any profits arising from the working of the mine. A meeting is called, resolutions entered into, the mine divided into 500 shares, and the adventurers are required to sign the cost-book, according to their several or relative proportions in the mine. Certain adventurers, who had taken up shares, do so to the extent of about 350 shares; but the list is not filled up, and thus the holder of 10-500ths is made liable, without his consent, or knowledge, to the debts, or obligations, of the company, to the extent of 10-350th parts, or shares—thus increasing his responsibility one-third. It appears that some disatisfaction being evinced on the part of one of the adventurers, he availing himself of the powers which are understood to exist under the Cost-book System, gave notice of relinquishment of the shares so held by him, and, at the same time, claimed his proportion of machinery, ores, &c., as is the ordinary practice.

For some reason or other, whether affecting private or public interests, Parliamentary or the poor law, an action was brought on the 7th inst. in the Court of Exchequer, FOX *v.* WYLD, to recover 180*l.*, or thereabouts, for goods furnished the mine, of which the defendant was an adventurer some 18 months since. The plaintiff proved that the defendant WYLD was an adventurer, his signature appearing in the cost-book, as confirming or approving of the resolutions passed; and in the end, or rather, we might say, the beginning, the learned judge expressed himself as satisfied that the defendant was liable, and so ended the case, except as to one or two points, which will be better understood on referring to our report. In the course of the learned judge's observations, he distinctly stated that, no matter whether a mine was constituted of 500 or 5000 shares, if that any one adventurer subscribed for a single share, he took upon himself the whole of the liabilities of the undertaking, even though the whole list of adventurers was filled up, or that he stood alone in the list. This is a fearful law, which would, however, be controlled by the Stannaries' Court, and, we hope, will be taken as a lesson by capitalists, and who will adopt our counsel, so oft given but, being gratuitous, is perhaps less valued—that of seeing that no debts are allowed to stand over, but are settled at the periodical meetings, knowing who are their co-adventurers, and not reposing confidence in others, but alone trusting to themselves. We regret to have occasion to arrive at such conclusions; but there is too much want of honesty, we are sorry to state, existing as relates to mining transactions; while it will ever be our object to expose such, and, at the same time, endeavour to protect and promote legitimate enterprise, which requires more than ordinary aid at the present moment, to render it productive, and afford encouragement to the mine adventurer.

In remarking on the progress of mining enterprise, both at home and abroad, we have, from the first establishment of this Journal, endeavoured to inculcate a predilection for the mines of our own country, in preference to those in distant lands, convinced that, on a review of the results of each, the former will be found to be the most profitable, the capital invested more secure, and the mind of the adventurer be free from that suspense and alarm, which every adverse report is tended to excite. Notwithstanding this desire to see the British mines flourish, and obtain that preference which we think, for many reasons, they deserve, we still warmly congratulate those adventurers in foreign mines, who, after years of suspense, the absence of dividends, and the almost utter annihilation of value in their share property, with scarcely any other prospect than that of winding up the establishments, at length find a change come over the aspect of affairs—a steady improvement taking place in the produce in their mines, both in quantity and quality, and their prospects sufficiently brightened, to give reasonable hope that the worst is passed away, and that a return to dividends will be resorted to at no distant day. Such is the position of our three large gold mining companies at the present moment—the St. John del Rey, the Imperial Brazilian, and the National Brazilian—the latest accounts from which, inserted in our last Number, are of the most encouraging description.

In the first of these it will be seen that, notwithstanding the month's costs were most excessive, being some hundreds of pounds above the average, a large profit was realised, and with every prospect that succeeding months will give equal, if not better, returns. Shares in this company have been done during the week at 13, and are still on the rise. The new mine of Bananal, now working by the Imperial Brazilian Company, gives great promise of giving to its proprietors a return of those palmly days, when Gongo Soco produced such stores of gold, but which have long since passed away, and have been succeeded by years of hope deferred, and property depreciated, shares having gone down to an almost nominal value, but which are now worth from 8*l.* to 9*l.* A steady and progressive improvement may also be traced in the National Brazilian, at Cocaes—the ground is not only highly promising, but presents almost unmistakeable evidence that rich veins will shortly be cut into. At Cuiaba the jacotinga continues productive, with every appearance of its being of a lasting character, and the produce continues steady. We sincerely congratulate the several bodies of shareholders on these brightened positions and prospects, and trust the approaching year may open under circumstances to revive that confidence which marked the early history of these companies, without that wild speculation that accompanied it, engendering mistrust, and leaving behind it nought but loss and disappointment.

STEAM COMMUNICATION BETWEEN ENGLAND, INDIA, AND SYDNEY.

A select committee of the Legislative Council of Sydney was appointed, on the 29th March, 1848, "to resume the consideration of the best means of establishing a steam communication between that colony and England, &c., and to take further evidence, and to report thereon." This committee reported to the Assembly on the 13th June last, which report, in detail, we have now before us. It appears that a resolution was passed in Oct., 1846, by which the Assembly became pledged to appropriate the sum of 500*l.* per month for three years, in aid of the plan recommended by the committee, for extending steam navigation to Sydney by way of Singapore and Torres Straits; and they, in their present report, state that it is incontestibly demonstrated, that such eastern route has an advantage over all other lines.—1. As being the shortest.—2. In its being a mere extension from Singapore of an already well-established line.—3. In its traversing seas, in which tempestuous weather would be rarely encountered, and, consequently, that vessels of smaller dimensions could with safety be employed—and 4. In facilities for coaling. In these particulars, all the other lines proposed present a very disadvantageous contrast. As the Home Government has, however, since the date of this report, taken the subject of steam communication generally into consideration, it will be necessary to examine the different plans they have proposed. One of these is by screw-propelled vessels, round the Cape, which was so far, for a time, favoured by Earl Grey, that the Government in England postponed any decision upon the proposal recommended by the committee for the above eastern route. Of the two routes recommended in England, the one *vid* the Cape, and the other *vid* Singapore and Torres Straits, the latter is the one recommended by the committee. They further state, that it is considered the Home Government have shown much anxiety to effect the consummation of the great object of bringing the colonies into connection with the parent state by means of steam; that this feeling appears to have been largely participated in by the public; and they refer, with no ordinary feelings of satisfaction, to the complete confirmation of the views of the Assembly, as to the superior eligibility, over all others, of the eastern line, by way of Singapore and Torres Straits. In giving an analysis of the evidence offered they consider—1. The great and increasing necessity for a line of transit, by steam, to connect the colonies with England, India, and China.—and 2. The most eligible line. It is stated, that England already expends 700,000*l.* a year in support of the various steam-packets, which connect the different portions of her colonial empire, and yet that she is beaten by the mercantile navy. Mr. Raymond, the Postmaster-General, states that the average passage of the packets from London to Sydney is 133 days, while that of private ships is 112. Five months often elapse from the last date of advices from England.

While the Australian colonies possess a population of 350,000 persons, they form the only considerable portion of the colonial dependencies deprived of that link, "rapid communication," by which Britain is connected, not only with her colonies, but with almost the whole civilised world. Then, as to the most eligible line, the entire evidence (the most important, that of Capts. King and Youle) is in favour of the eastern route; it is, for steamers, comparatively destitute of all danger, the numerous islands serving as beacons, which come successively into sight, forming a buoyed channel through which a steamer may, from the smoothness of the water, steer with great nicety. In no part of the line need a steamer, between Sydney and Singapore, extend her course for a greater distance than 100 miles from land, so that the greatest facilities for coaling would be presented at almost every point touched at. The absolute geographical distance from Sydney to Singapore, by Torres Straits, is less by 230 miles than by the south-western course by Cape Leeuwin. In the accomplishment of the latter the most formidable difficulties exist. Westerly winds prevail during a great part of the year; they would have to traverse an extent of open sea, requiring the largest vessels; and from the day they quitted Point de Galle they would avoid all feeding points, and have to run for the miserable coral reefs, called the "Keelings," or "Cocos," which can scarcely be said to be inhabited, and which are so low and small, that there would be constant difficulty in finding them, and where the continual surf would much impede the business of coaling. The evidence is also equally conclusive as to the impracticability of joining the Indian line of packets by the westerly passage through Bass's Straits, and by Cape Leeuwin. The committee finally recommend the Assembly, by renewed representation, to press upon the attention of her Majesty's Government for the concession of the great and important boon which is so ardently coveted. They are persuaded that it is only necessary that the expediency and practicability of the measure should be fully understood, to secure for it similar support to that which has been so successfully extended, by an enlightened and liberal policy, to other portions of her Majesty's colonial dominions.

Since the foregoing was in type, the following letter has been addressed from the Colonial Under Secretary to Sir T B. Birch, M.P., on the subject of steam communication with Australia:—

Downing-street, November 30.

Sir,—I deferred answering your communication of the 18th August last, because the arrangements were still in progress for the establishment of a system of steam communication with Australia. I am now directed by Earl Grey to acquaint you that, from a letter which has very recently been received from the Board of Treasury, it appears there is every reason to believe an engagement will soon be concluded with the India and Australian Steam-packet Company, for the conveyance of the mails between Singapore and Sydney, for a period of not less than seven years.

I have the honour to be, Sir, your most obedient humble servant,

Sir Thomas Birch, M.P. B. Hawes.

THE IRON TRADE—THE BANK OF ENGLAND.

TO THE EDITOR OF THE TIMES.

Sir,—As neither your time nor your columns are of so little value as to warrant unnecessary words being addressed to you, I beg to trouble you with the following simple facts only; and if you are pleased to insert this communication in your powerful paper, it may elicit attention in the quarter from which a redress of the grievance of which I complain may be derived.

I am an ironmaster, carrying on, through the superintendence of my sons, the several works of Cyfarthfa, Hirwain, Newbridge, and the Forest of Dean; and am the vendor of the produce of these works myself, as an iron merchant, in Upper Thames-street. Owing to the falling off in the demand for rails, the iron trade is in a sad state of depression, and the competition is such, that bar-iron and rails may now be purchased at or about the rate of 5*l.* per ton at the several ports of shipment in Wales, a price which is below the present actual cost of production.

I have met with the most cutting competition from a company of ironmasters entitled in the iron trade "The Bank of England;" and, in Liverpool and London, almost every quotation which I make to inquiries of the prices of iron for export, is met with the reply, "The Bank of England will sell considerably lower." To a quotation which I made to a metal-broker for only 50 tons of sheet-iron for shipment to India, of 9*l.* per ton, free on board in the docks here, I received the answer, "I can buy it from the Bank of England at 7*l.* 10*s.*, free on board here;" and I have since been informed by the same party, that he so bought the said 50 tons of sheet-iron, the total amount being 375*l.* In consequence of this very low and, to the makers, ruinous sale of sheet-iron, I deputed the same broker to purchase of the Bank of England for me 100 tons of the same description; but, after a delay in the acceptance of my order of three days, I was informed that the "Bank of England had been deceived in the quantity of sheet-iron which they could manufacture, and having already sold several other parcels, could not enter into further engagements at present."

Now, Sir, it appears to me, that however unwillingly or unpremeditatingly the Bank of England may have been drawn into the manufacture and sale of iron, it cannot be within their province, even as mortgagees in possession of iron-works, to carry on, as the Bank of England, a trade or manufacture beyond what it contemplated and warranted by their charter; and, as an individual ironmaster and iron merchant, I can but feel deeply aggrieved by such a competitor as I met with in that company.

The wages which I individually am compelled to pay my men weekly, and at the end of each month, amount to not less than 25,000*l.*, the whole of which I am bound to find in cash, and no part of my works (unlike those of my competitor) afford me the advantage of making my own bank-notes. Were such convenience attached to my works, I could sell bar-iron 20*s.*, and sheet-iron 30*s.*, per ton below the market price, and yet be enabled to pay my workmen on Saturday night; and surely, Sir, if a charter to the Bank of England for note-making be construed to extend to making iron, a privilege ought to be allowed to us depressed ironmasters, in addition to the manufacture of iron, to make our own notes; and then we might by possibility exist under competition with the Bank of England. How long this new trade of iron making is to be carried on by the Governor and Company of the Bank of England, in addition to their grand monopoly of paper, will, in my humble opinion, much depend upon the notice which you may be pleased to take of this matter; and, powerful as you are in abating other grievances and improprieties, I trust this may not be considered unworthy of being taken up by you with your usual extraordinary ability and acumen.—W. Crawshay: *London, Dec. 6.*

THE MINING INDUSTRY OF ERANCE.

[FROM OUR CORRESPONDENT.]

"When things are at the worst they begin to mend," is an old and favourite adage in our own country. Its truth is demonstrated by what we see in this troubled part of the world. For months and months things commercial have been in a most wretched state; for some time past they have been almost as bad as they possibly could be. Now, however, they are beginning to improve, and there is reasonable cause to believe that the improvement will continue. The night has passed away, and the day is dawning.

People count on the election of the President of the Republic for a return to constitutional order, and with it a restoration of commercial prosperity. It matters little which of the two great candidates, Cavaignac and Bounaparte, may be chosen. The result, it is believed, will be the same, inasmuch as either would have ample means to crush any insurrection, and maintain order (as Louis Philippe did for 18 long years), by brute force. It would, however, be most agreeable to the mercantile interest to see Cavaignac elected, as he is the best qualified to establish the new order of things, and as the *prestigé* he has acquired, completely cows the disaffected. With Louis Napoleon there would, probably, be a new rising, and though it would have no chance of success, it would create distrust, and continue the commercial crisis.

When order shall appear to be permanently re-established, there will be, according to all appearances, a perfect fever of commercial enterprise. The capital that has been hidden since February will be brought forth, and all that can be rescued from unlucky speculations will be seeking employment.

What will be done with this money, which will turn out to be of no insignificant amount? I think we may answer that it will most likely seek new channels, and that one of the principal of these will be *mining enterprise.* This, you may remember, is no new opinion of mine. Months before the revolution came, I predicted that the next great flush of mercantile speculation would be mines; and all I have heard since, and hear now, confirms my conviction. Mining enterprise, and undertakings connected therewith, are in fact almost the only field that lies open to capitalists in France. Railways, newspapers, asphalte, the public funds—in a word, business undertakings of all kinds—have had their day: mines and metallurgic establishments alone, I repeat, have not been *exploited* on a grand scale.

I would recommend your readers to be prepared to take advantage of this movement, when it comes. Appeals will naturally be made to English capital, and I think it will be found that an excellent opening for *prudent speculation* will be afforded. The political march of February has, no doubt, created great prejudice against investments of capital in this country; but the prejudice should not be allowed to run away with the reason. By *temporary* encouragement of some of the speculations presented to the public, much money may be realised; and even capitalists, disposed to make permanent investments, may be able to do so without imprudence.

In some of the letters which I wrote to you immediately after the revolution of February, I ventured to predict that the interests of which you are the organ would suffer *less* than any other. The result has proved that I was right. Not only have shares in mines and metallurgic establishments undergone less depreciation than those of railways and other undertakings, but mines and iron-works have not had to suspend, or diminish operations to anything like the extent of other branches of business. Neither have the men employed in them been so exacting as those of other trades. In the coal districts of the Loire, it is true, there has been a strike of the pitmen; but it was a capital thing for the owners of the pits, as it enabled them to get rid, at improved prices, of large stocks of coal they had on hand. And even in the imports of coal and metals, we find that the falling off has been much less in proportion to those of other staple articles. Take the following statement of the duties received on some of the principal imports as a specimen:—

	1st 10 months of 1848.	1st 10 months of 1847.	1st 10 months of 1846.
Coal..... *Francs*	3,413,004	4,181,630	4,080,847
Cast-iron	2,175,687	4,399,066	3,946,981
Tin	14,167	23,948	26,056
Copper.....	49,746	132,160	114,409
Cotton	7,600,983	7,802,829	12,554,178
Linen threads, &c.	320,159	1,240,925	2,375,065
Linens, &c.....	565,227	1,232,921	1,682,442
Sugar	18,372,117	35,560,884	31,347,304
Wool	2,372,804	5,407,621	6,518,256
Coffee	10,945,979	12,930,819	13,271,792
Corn.....	546,758	2,941,089	8,584,997

These figures are eloquent. The following are also deserving of attention: among other things they show that, in two great imports of coal and cast-iron, England has suffered less than her rival, Belgium—a circumstance which proves the correctness of another prediction of mine:—

	Imported into France during the First Ten Months of 1848.	1847.	1846.
	Met. quin.	*Met. quin.*	*Met. quin.*
Copper—England.....	13,771	34,875	36,764
Chili	16,089	7,102	6,962
Other places.....	17,876	21,633	16,255
	47,736	63,610	59,981
Tin	9,150	12,498	15,006
Cast-Iron—England	135,704	261,363	369,031
Belgium	270,166	486,706	345,171
Other places	20,512	46,613	43,932
	436,382	794,682	758,134
Coal—Belgium.....	9,140,695	12,017,779	9,852,095
England	4,685,797	4,873,933	5,666,201
German Commercial Assoc...	1,365,785	1,660,317	1,470,196
Other places.....	1,811	33,434	412
	15,194,088	18,585,463	16,988,934
Zinc—Germany	518	35,789	8,497
Belgium	31,367	40,192	44,764
Hanse Towns.....	3,563	35,499	13,286
Other places	7,707	23,283	18,153
	45,155	134,723	84,700
Lead	106,198	194,276	252,551

Among the disasters occasioned by the revolution is the bankruptcy of the Mining Company of Bona, in Algeria, got up by M.M. Bassano and De Solms. This concern never enjoyed much favour—was never under good management—and never had command of any capital. Its failure, consequently, is not to be wondered at.

CALCULATION OF THE STANDARD.

Mr. John Hitchins, of Tavistock, has published, in small pocket size, a series of tables for calculating the standard of any copper ore, of a produce of from 1½ to 30, the average produce and standard being ascertained. These tables are calculated from the logarithim 135, which the author states, after long experience and mature consideration, always gives correct results. For example: The average produce being 7, and standard 110*l.*, required to know the standard of ores of 5 and 15 produce respectively?

First set down average standard.....	£110	0	0
Then deduct the sum placed opposite produce 7 in table, or 135÷7=...	19	5	8
Reduced standard.....	£90	14	4
To which add, for the ore of 5 produce, the sum in table opposite 5, or 135÷5=	27	0	0
Standard for ore of 5 produce	£117	14	4
And for ore of 15 produce, the reduced standard, as before.....	£90	14	0
Add 135÷15=.....	9	0	0
Standard for ore of 15 produce	£99	14	4

The manner of calculating the standard has puzzled many parties connected with mining, who have now before them a most easy and perfectly clear method of at once ascertaining the value of any ores which may be raised; and the mining public are indebted to Mr. Hitchins for this much desired information; while the already calculated tables, which may be carried in the waistcoat-pocket, will be exceedingly useful to the agent, captain, clerk, &c.

Original Correspondence.

THE FORMATION AND REDUCTION OF THE PRECIOUS METALS.

Sir,—In the *Times* of the 5th inst. we find the following:—

"A new district of silver-ore mines had just been discovered in the province of Coplapo, on the north coast of Chili, which was expected to yield enormous wealth to the discoverers. The silver, it is said, appears in an abundant efflorescence on the surface, and is of a high ley, and so easily obtainable, that a great quantity has been collected 'without turning a stone.' As many as 3000 persons are represented to be engaged in the desert of Coplapo, eagerly traversing the scene of this wealth. All the discoverers are poor people; but an offer of 8 240,000, made to them for the transfer of the property (vested in them, according to the laws of Chili, by right of discovery), has been refused. The plan recently talked of in Chili, for separating the silver from the ore, by means of salt, as a cheap substitute for quicksilver, is said to have failed. Quicksilver is still used, and its consumption has greatly increased during the past year."

Assuming the above to be correct, and there is no reason to the contrary, inasmuch as the efflorescence of metals from rocks is of common occurrence, like the native saline production, but seldom found as abundant as above represented; yet the question is of extreme interest to geologists, and it has an important bearing in all works connected with the explorations and reduction of the precious metals.

Primary rocks, composed of quartz and felspar, with a grey base, approaching to the character of porphyry, saturated with decomposed felspar, containing an excess of potash, with a small proportion of silica in solution, will, by time, produce a metallic efflorescence on the surface, and also fine crystals in fissures, and still more beautiful crystals in vacuities within the rocks. Gold and silver, and other metals least subject to oxidation, are commonly seen in such a state; so identical is the general appearance and the action of this metallic growth to that observed on the face of the negative plate of a battery immersed in a metallic solution, as to render the analogy complete. The gold obtained from the washings at the foot of auriferous mountains is generally produced in the same manner—that is, not in veins, but as a superficial efflorescence in the oxidated part of the crystalline mass. I have already alluded in a former Number, and also in my work on this subject,* to the slow chemical process which is constantly going on in all *moist* crystalline rocks, and that this perpetual action in the subterranean base gives rise to disturbances in the rocky structure, and also new production of metals, or rather causing a change from the fluid disseminated state (in which the metals appear to be), to that of the aggregated crystalline solid state.

These metals, during the act of their new formation, are again subject to become alloyed, or mineralised, by other elements, according to their respective degrees of affinity and local circumstances. This process of perpetual change in the mineral kingdom (whilst in a state of saturation within the crystalline film of our globe under the sedimentary rocks) is as constant as the action of the sap in the growth of vegetation—both are in a state of activity. The surface of the auriferous granitics of South America and the Isthmus of Panama, especially those varieties subject to decompose in spherical exfoliation, show this effect in a very remarkable manner. In depth we find the uniform crystalline structure, which, by fine grinding and washing, produce but a mere trace, or a yellow tinge; as we ascend, the crystalline aggregation passes, by an almost imperceptible gradation, into a kind of globular structure, like a coarse conglomerate; the respective nuclei of each centre of attraction becomes denser and harder than the parent rock by the concentration of the surrounding silica, like the formation of flints in chalk. Each nuclei is enveloped by a series of concentric envelopes, which enclose, as they approach towards the surface of the rock, an efflorescence of ferruginous mineral, containing gold in minute crystals, and in grains. These grey compact silicious centres are called by the native gold-washers in South America the "madres," or mother of the gold, as without these rounded nodules they seldom find sufficient gold in the debris to make it worthy of the labour of washing. The gold, as already noted, is in such a minute state of dissemination in the uniform crystalline base, as to make it almost difficult to detect the mere trace of it; but in the oxidated crust the metals become aggregated to different centres, and form into grains, easily detected by the ordinary washing process.

The stony nuclei, as well as the concentric rings, are completely deprived of their original auriferous contents by this process of internal aggregation. I have many specimens from the gold workings of Mal Paso, near Mariquita, of the same character. After these oxidated crusts are scraped, or washed, away from the foot, or from the ravines of such mountains, the gold washers must remove to other localities, or wait a few years until this slow process of Nature supplies them with a fresh crop, as they know to their cost that it would be useless to penetrate into the hard rock in search of the metal, as it must have a surface, vacuity, or a fissure for its formation. Therefore, there is nothing extraordinary in the effervescence of metals to those who have studied natural phenomena in the great works of Nature. *Moss copper* is well known to miners, vegetating, as it were, out of cupreferous rocks. A great portion of the green carbonates and oxides of copper are produced by a similar process. These kind of formations are more prevalent in the south temperate zone, as seen in Chili and Australia, than the veinous sulphurets. The bog iron ore is of the same origin, and also the mamillated peroxides of iron deposits or incrustations of the argillaceous series. The gold mines of California are precisely of the same character, the quantity of the available gold being limited to the amount of the decomposed debris. I know of no primary rocks of the above composition of quartz and felspar but what contain gold; nor rocks containing a certain kind of mica but what contain silver; but the structural action of the latter species of rock is generally different, being commonly the longitudinal lamination. The other point noticed in the *Times* is the failure of the separation of the silver by salt; and that the consumption of quicksilver is on the increase.

In the *Mining Journal*, of the 15th July, this question was noticed thus:

"According to the observation made in your last, quoted from a letter, received from Valparaiso, persons may suppose that there is a great amount of quicksilver consumed in *all* silver mines, and that salt has no value. The most perfect, economical, and the most expeditious method of reducing silver ore is the barrel amalgamation, in which process the consumption of quicksilver does not exceed 3 lbs. per ton of ore treated; but the quantity of salt consumed is considerable—viz.: 10 per cent., or 2 cwts. per ton—which, at some mines, is nearly six times the value of the quicksilver; consequently, a process which would cause a reduction in this heavy item, would be much more important to silver mines than the quicksilver. After the sulphurets, oxides, &c., &c., have been converted into chloride, it is easy to obtain the silver by means of metallic precipitants—iron or copper—but the great practical difficulty in the large scale is, the conversion of the sulphurets and oxides into a soluble salt, by means of a *cheap* method."

It is an old saying, "that muriatic acid has no affinity for silver in its metallic state." In Chili, the silver predominates in its native state and oxides, and comparatively little sulphurets; therefore, chlorides cannot be easily formed, without the aid of another element to bring the metal in solution. The silver must be decomposed, or dissolved first, by *sulphate of iron*, before the salt can act and convert it into chloride. Chlorine has not sufficient affinity, excepting in solution. It is, therefore, indispensable, whether in the Patio or the Barrel amalgamation, to mix the ore with iron pyrites to form the sulphate, as well as to decompose the salt; otherwise, no perfect amalgamation can be effected. Probably this has been the cause of the above alleged failure. Quicksilver alone must be a slow and very imperfect process—not only causing a great waste of this metal, but, doubtless, also a heavy loss in silver; therefore, when salt can be obtained at a cheap rate, persons of practical experience will adopt it without hesitation, as being the most effective and economical means of extracting the silver from its ores.

For an early Journal, I will furnish you with a copy of a paper read at the British Scientific Association, at Swansea—viz.: "On the Polarity of the Cleavage Planes, their Conducting Power, and the formation of Mineral Veins, &c.," which will enter more fully into the subject.

Clayland's-road, Clapham-road, Dec. 7. Evan Hopkins.

* Hopkins *On the Connexion of Geology with Terrestrial Magnetism; shewing the General Polarity of Matter, the Meridional Structure of the Crystalline Rocks, their Transitions, Movements, and Dislocations, including the Sedimentary Rocks, the Laws regulating the Distribution of Metalliferous Deposits, and other Magnetic Phenomena.* Published at the office of the *Mining Journal*, price 10*s.* 6*d.*

EXPLOSIONS IN STEAM-BOILERS.

Sir,—If the cause of explosion in steam-boilers was proved to depend on the evolutions of *electricity*—a mere assumption on the part of the author (Wilder), of a paragraph in your Journal of 28th Oct.—the remedy were indeed an easy one—a *chevaux de frize* of points to effect its constant dispersion, or, better, a copper wire, connecting the boiler with the earth for its conduct to the ground, would effectuate the condition of safety; but the *cause* must still remain the question at issue. You are aware I have repeatedly denounced the structure of the so-called "safety valves" of steam-boilers, which are truly a misnomer. It has often occurred to me, that the principle of *Winfield's letter weigh*, or balance, would be an admirable substitute for the *senseless* ones in common use. The

spiral spring should be of galvanised iron, and the weights on the disc above could be adjusted with amazing facility and dispatch. No "gagging" would mar its action; and the rise and fall of the index would at once indicate the superincumbent pressure and the resilience of the steam; and when the moveable plate, or disc, to which the spiral coil is attached, is raised in the cylinder in which it is confined and moves, an ample provision might be made for the escape of such a quantity of steam as would immediately relieve an undue pressure, arising from an instantaneous disengagement of steam. I have had Winfield's letter weigh in constant use for eight years, and its delicacy is in no ways impaired; the spring valves and buffers of engines illustrate the permanence of the principle.

Portland-place, Hull, Nov. 28. ——— J. MURRAY.

ELECTRICITY AND CHOLERA.

SIR,—I hope to live yet to see numbered among the innumerable benefits electricity has conferred on our race this one inestimable boon in addition—namely: its introduction as a therapeutic agent into our hospitals and infirmaries. In fever wards, and the cholera hospital, its application to a morbid condition of the atmosphere, fraught with miasmata, might "heal its sickness and restore its salubrity, and thus the plague be stayed;" while the disinfectant, introduced under the form of nitrous acid gas, would check the communication of infectious disease. I trust, therefore, the recommendation of electricity into the cholera hospital, advocated in my pamphlet, on *Ventilation*, &c., will be earnestly considered.

Portland-place. Hull, Nov. 28. ——— J. MURRAY.

THE MINERS' INTEREST—NEW SMELTING COMPANY.

SIR,—As one of the declared objects of the new smelting company is to support, as well as be supported by, the mining interests, it appears a favourable opportunity for founding a much and very long-required establishment, really and largely beneficial to the miner, the mine shareholder, the lords or proprietors of the mineral, and to the smelter, the merchant, and, in fact, to every class and degree of the population. Looking at what has been, what has not been, what can be, and what ought to be, it is very desirable that the proposed new company should comprise *something more* than mere *copper furnace* operations. The certainty of at least proportionate benefit to the smelter and the miner might comprise tin smelting, from which, with a proper treatment of the tin ores, and their compounds of silver, and other valuable mineral, there is even a wider field for profit to the smelter, and benefit to the miner, than from copper smelting. It is not generally known, that many of our tin ores, as well as the poor Devon and Cornwall copper ores, are of much *more value for other mineral*; and that even millions of pounds sterling in value must have been *fired away* by our miners and smelters, without either of them troubling themselves to suspect, think, or investigate.

CAM. BRIT. says—"Very considerable quantities of silver are contained in some of the tin veins, but it is not thought of, or generally examined for this metal."

BOYLE says—"One expert met with tin ore, which, on being subjected to lixiviate liquors, constantly afforded him large quantities of silver."

VANNOCHIO says—"The *red earth* (gossan) often contains the precious metals;" and BOYLE also says—"One, famous for his skill, obtained, by a particular flux, very much gold from mineral which had been taken to *the public assayers*, who were unable." ALONZO BARBA speaks of the "*considerable* quantity of both silver and gold in the copper ores of Cremnitz." ACOSTA says—"Gold and silver are commonly found with copper ores; and, in following the veins of *tin*, the miners often meet with silver." Dr. BROWN says of the Windschot Mine—"In following the vein, they meet with gold; but it is more usual to have the veins carry silver." ALONZO BARBA again says—"The Mine of Oslogue was at top, in a manner all copper. As they got downwards, the ore grew more rich for silver; but the water hindered them from prosecuting further riches."

One of our own copper mines has for years sold its ores, and, perhaps, lost more by the unwitting waste, or sacrifice, of the combined silver, than it has received for its great sales of copper ores. There are many mines turning away, or leaving valuable mineral untouched; and many mines have been shut up with loss by working for copper in veins combining other mineral, that, with due chemical attention, would have been preserved and worked with profit. Even now there are scores of lodes, the workings of which have been attended with loss, solely because "the ores were too poor for copper." "If they had but only a quarter part of copper ore, instead of the rank mundicy stuff with the gossan, it would be a pretty lode, sure enough."

Our mine captains, pursers, &c., have but very little mineralogical or chemical skill; they can generally distinguish yellow copper ores, the green carbonates, the red and black oxides, and some of the grey copper ores. Most, but not all, can tell rich oxide of tin and the sulphuret of lead; but all that is neither the sulphuret, carbonate, or oxide of copper, lead, or tin; and not very unfrequently even some of these go for "mundic," "wolfram," and "barytes." It matters not whether it be the white copper ores for "mundic," an unusually rich tin ore with silver for wolfram, or carbonate of lead for barytes. All containing nickel, cobalt, silver, bismuth, sulphur, and arsenic, are thrown aside, or left standing in the lode, without any thought or investigation of the value of these "mundics." Even the gossans are but rarely tried for silver, although many of them could be very profitably worked by proper chemical treatment; but they are nearly in as bad plight as the "mundics," which no one knows how to treat and separate.

The present copper smelting establishments provide no means of turning to account these "contaminated," and at present useless, though valuable minerals, and, therefore, there are now scores, nay hundreds of thousands of tons of these minerals ready opened up for the application of the facilities and powerful separating, desulphurising, and other influences and economies, at the command of the electro-chemical metallurgist. Such a state of things appears very strange at this time of day: however, in reference to the proposed new company, it is well that it is so, since it lays bare the palpable fact, that the scientific indifference of the present smelters has not only left open great advantages to the proposed new company, but has also furnished very strong grounds for inferring that their profits must be enormous, or such establishments would have been less apathetic to the means of properly treating the compound minerals, and saving to the amount of many hundred thousand pounds' worth of silver, and other mineral, which they must have either *burnt*, thrown away in their slag, or let remain in their copper.

As among the different smelting establishments there is no arrangement or branch to which the mining community can send their minerals for proper assay, or analysis, at a cheap rate, it appears that such a branch might be arranged, to be of real and very great service to the miner and the whole body of mine shareholders, and to the lords of the mineral, and directly very advantageous to the new company, whose works should be so arranged as to be replete with every means of analysis, and afford opportunity for the miners, as well as all other parties, to have their mineral thoroughly examined, as far as either the only partial assay, or complete analysis, at only such charge as just to indemnify the company from actual expense, and so that the mine agents and others may be induced to send their mineral without hesitation as to the expense, and feel full confidence that the report, whether of assay or analysis, may be implicity relied on. With the report should be given details and information as to the properties, utility, and value of the mineral. Under such an arrangement, the now "useless mundics" will be turned to valuable account, and sustain many mines, which will otherwise lose much valuable mineral, and perhaps shut up with loss, instead of great profit, to the shareholders, riches to the mineral proprietor, benefit to the merchant and trader, support to the mining population, and relief to the parochial burthens. It, therefore, appears desirable that, in addition to their furnace arrangements, the new company should secure the experience of one or more of the continental metallurgical chemists of unquestionable practical and general skill. Perhaps there will be convenience in having two establishments—the chief one, for smelting, in Wales, and a branch, with electro-chemical arrangements, in Cornwall, somewhere about Bodmin, or Wadebridge, where there are many natural advantages for arranging such a branch, by its easy accessibility for all, in its plenty of good water for service, as well as machinery; in its central position, east and west, as respects the important mineral districts of West Devon, and the north and south-east of Cornwall, and those of the west and south of Cornwall; and in its facilities of the railroad, and the navigable river, fine harbour, and ultimately first-rate port of Padstow, adjoining its premises on the north, and in its leaving the river and port of Fowey direct south.

Provided the new company be honestly and judiciously managed, *with ample capital* to seize the advantages which a comprehensively bold, but yet prudent, arrangement will open up for it, it cannot but be highly successful and profitable to itself, and greatly beneficial to the whole body of the mining interests; and bearing in mind the true interests, both of the mine shareholder and the smelter, I have been anxious to urge consideration to the importance of the best practical treatment of our "poor mundics," as well as our Devon and Cornish "poor copper ores," *in the laboratory, as well as in the furnace*; and to suggest that there be ample funds, and such as that the company do not proceed with a capital too small to embrace the advantages open to them, or insufficient to make a stand against the indirect influences of the existing monopolists, who will endeavour either to force the new company into their league, or else combine against it. Surely, in a matter involving so much profit and general good, and one in which so many interests are concerned in its establishment and well being, it only needs that those gentlemen who have taken the initiative in the formation of the company, should make proper effort, and secure the "One and All" support of those interests to be benefitted by the company.

Thinking the firm and permanent position of this new company a matter of very grave importance, I have ventured to make the above remarks, with the intention of exciting thoughts and suggestions which may lead to a sound and comprehensive establishment. GEORGE ABBOTT.

Charles-street, Dec. 6. ———

COPPER AND SMELTING TRADE.

SIR,—In your Journal of the 25th November, I observed a letter signed "Plain Facts;" and, although I am not pepared to controvert any of the statistical tables, compiled with so much care, and with no little trouble, yet previous to your correspondent entering into the smelting department and exportations of copper, and while he is still on the subject of the importation of copper ore from all the world, I deem it my duty to point out a few of the errors which he has made, and, as far as lays in my humble power, to supply some of the information in which he appears to be deficient. In the first place, he believes there are no copper mines in France; there is one at Chessy, near Lyons, which has been partially worked for some years. The production is small; fine specimens of the different carbonate of copper are constantly being obtained from here. The smelting operations here are conducted in blast-furnaces, as in Germany, the fuel employed being charcoal. In his paragraph on the Norwegian works, he says the average production of the Roraas Mines is 7 per cent.; it never exceeds from 4 to 5 per cent.; and, instead of being very productive within the last few years, the produce has sensibly diminished; and the expenses of smelting have increased, in consequence of the proprietors being compelled to fetch their fuel 20 to 30 miles from the works, all the woods in the neighbourhood of the mines having long since been consumed. The shares at Roraas barely pay 4 per cent.; 10 years since they were double. He gives the copper of the Alten Mines to be 99$\frac{80}{100}$ths. This I very much question; that it is possible cake copper, on being refined in a crucible, can be brought to this per centage, is without doubt; but I do not think he will get any practical man to believe it can be produced from a reverberatory furnace at such a high per centage; perhaps, however, when he enters into the smelting department, he will enlighten us on this point. He further states, there are few copper mines in Germany; although there are but two or three worked by Englishmen, yet there are several, and of greater antiquity than any of the Cornish copper mines, which were not worked, with any degree of system, until some time after the revolution of 1688, at which period the German mines had attained a tolerable development, and produced several mineralogists of more than common fame. For his information, I beg to state there are several extensive copper mines in Germany. Among those most noted are Andreasberg and Raummelsberg, in the Hartz; Freyberg and Altenberg, in Saxony; Mansfeld, in Prussia, near the town of Eisleben (famous for the birthplace of Martin Luther, who was the son of a working miner); Schwartz, in the Tyrol; Saalfeld, in Thuringea. There are likewise several in Austria, Hungary, and Bohemia, the produce of which, when exported, goes through Germany. There are likewise a few copper mines in Spain; I believe the company working at Rio Tinto, near Seville, have exported some of their copper—probably "Plain Facts" can inform us; as while we have the rest of Europe, it is rather unfair the Iberian Peninsula, one of the most ancient countries for the production of copper, should be excluded. In addressing this brief communication to you, my sole object has been to add my mite of information to the mass already furnished by "Plain Facts."—OMEGA: *London, Nov.* 30.

COPPER SMELTING.

MR. MERRY'S METHOD (see *Mining Journal* Nov. 4).—I have waited, with some disappointment, the observations of young smelters, who wish to understand the science of their art, upon Mr. Merry's paper in your 689th Number, opening up some curious and interesting views of the theory of smelting; and my object in writing now, is more to call their attention to it, than to offer my own remarks. For, as stated in a former letter, being used to regard the blowpipe as the guide to the crucible, and the crucible to the furnace, I should much like to know how far the order of oxidation, given by Mr. Merry, is found, or believed, to correspond with that in the course of smelting; that is, whether the first slags contain most of the manganese; the second iron and cobalt; and so of the others? I should be much pleased to see what they have to say on this question.

Mr. Merry will next permit me to ask him, whether he has convenience for carrying his experiments on through the crucible; and trying how far they are confirmed on that increased scale. His observation, that their oxidability is modified by their state of alloy, is illustrated by the experiment given; for it is, I think, a pretty general observation of blowpipists, that cobalt, with borax on charcoal, disguises most other metals, by its intense blue. The action of the oxidating flame is rarely tried on charcoal; but I think his alloy must be rich in manganese, to give the hyacinth tint on charcoal, in presence of cobalt. Did he pay any attention to the proportions? or can he describe the alloy used, so as to enable us to follow on his experiments? He will observe one oversight—viz., that "*peroxide* of iron colours the bead bottle green;" which is the reaction of *pro*toxide, *per*oxide making it yellow; but this may have been greened by the cobalt blue. And his getting out the iron before the cobalt, must, I think, be attributed to his unusual method of working, with the oxidating flame upon charcoal. Be this, however, as it may, his paper, opening up so curious an insight into the theory of copper smelting, I hope he will, so far as he has convenience, carry it on in the crucible; and shall be glad (if he will inform me, through your columns, where to get, or how to make, the compound alloy or regule, in the proportions used by him) to co-operate in the investigation. Meanwhile, I should much like to learn from the smelters how far they agree with him, and what may be their objections, either to his theory or to his proposed method of smelting; and shall still wait, a reasonable time, for their observations and questions, before putting forward my own opinions and suggestions.—J. PRIDEAUX: *Plymouth, Dec.* 4.

CARBON AND IRON.

SIR,—In reply to Mr. Mitchell's letter, inserted last week, I may observe that, as it is difficult, if not impossible, to preserve a perfect uniformity of heat in any furnace, it may, therefore, follow that malleable iron, exposed therein to protracted red-heat, with exclusion of air, may, from its contraction and expansion, assume the crystalline texture. Be this as it may, I cannot consider such expansion and contraction as a true vibration; neither is the crystalline arrangement produced by any means identical with that occasioned by vibration only in the cold state.

As long as I can obtain from graphite a per centage of metallic iron, amounting in every case to at least 5 per cent. upon the weight of graphite operated upon, I must consider graphite to be a compound of iron and carbon. I do not deny that chemists may obtain from grey cast-iron a pure carbon, which they may likewise designate graphite; but this is neither like the keesh of the blast-furnace, nor yet analogous to the plumbago of Borrowdale, which are, or at least have been, designated graphites, and which are never found to contain less than 5 per cent. of iron. The scaley residuum of grey cast-iron, when examined under the microscope, differs essentially from the scales of blast-furnace keesh; the latter possesses a deep black lustre, which is entirely wanting in the residuum from the solution of grey cast-iron.

I now come to the counter-explanation given by Mr. Mitchell of my father's experiments, as detailed by me in my former letter, and we shall see if the sequel of those experiments bears out Mr. Mitchell's opinion:—"When the proportion of powdered white cast-iron used with the ore was increased, as much iron was revived as in the first experiments, with the powdered grey cast-iron; and when a still larger proportion of high-blown metal was added to the ore, an equal effect was produced in reviving the metallic contents of the ore. From a comparison of the results thus obtained, I was led to infer that the absolute quantities of carbon actually present in the refined metal, white cast-iron and grey cast-iron, were as the numbers 1$\frac{3}{4}$, 2$\frac{1}{2}$, and 4$\frac{1}{4}$ respectively."

Again, Mr. Mitchell has not refuted my position—viz.: that in every instance, and with any given ore, a larger produce is obtained when the metal is grey than when it is white: this is an established fact, from the blast-furnace down to the smallest crucible operations. I shall add one more proof, which I consider as decisive and unaswerable. I take an ore of iron, and adding thereto a certain weight of flux and charcoal, I obtain a button of white cast-iron from a given weight of the ore. This button shall be covered with a glass as transparent as ordinary window-glass, and its weight shall be, for example, 60 per cent. upon the weight of the ore introduced into the crucible. I now repeat the experiment with the same weight of ore, and an equal weight of flux, but with an additional dose of charcoal; I give the experiment a rather more protracted exposure, and I obtain a rich button of grey cast-iron, whose weight amounts to 63 per cent. upon the weight of the ore introduced. This button also will be found under a glass of precisely the same appearance as in the first case. If, then, the additional weight possessed by the grey button, beyond that of the white cast-iron button, be not due to the excess of carbon contained in the former, over that alloyed within the latter button, to what else can it be ascribed? When carbon is added to an ore of iron in fusion, the amount, or per centage, of iron revived is always in proportion to the absolute quantity of carbon present, beyond that amount which is requisite to protoxidise the whole of the ore, and if the carbon present is insufficient to effect this deoxidation, not a particle of iron will be derived.

During the deoxidation of iron ores, I am of opimon that either the ores give out a large quantity of pure uncombined oxygen, or otherwise that carbon combines with oxygen, so as to form a compound more highly oxidised than carbonic acid; and the following experiment seems, I think, to indicate that one or other of these suppositions is borne out by facts. Ten pounds of very pure red hematite, containing, by assay, 70 per cent. of iron were stratified with $\frac{1}{2}$ lb. of oak charcoal, and being carefully shut up in a crucible, the whole was exposed to cementation. After an exposure, rather longer than is usually required, the ore was found very completely metallised, and it had sustained a loss of 26·4 per cent., in oxygen of course, for it had been previously calcined to expel the moisture from it. So that 3500 grains of carbon had sufficed to carry off 18,480 grains of oxygen from the ore, which is more than double the quantity of oxygen requisite to form carbonic acid with the carbon introduced. The ore used in this trial was from Brixham, in Devonshire. With various ores, of an equal per centage in iron, very different proportions of charcoal are found to be requisite to effect their complete deoxidation.

I conceive that steel is more or less saturated with gaseous carbon, which it retains by the force of affinity, just as hydrate of baryta retains its moisture; but whether in the gaseous or solid state, I can see no data for determining. In the cementation of steel, I attribute the tediousness of the process not to the difficulty of saturating the iron with the gaseous carbon, but to the slow and gradual manner in which the surrounding carbon assumes the gaseous state, and the iron can absorb no faster than the gas is generated. When at the proper temperature, the iron is presented with a full dose of gaseous carbon, the absorption and saturation is instantaneous and complete; and, as I have carried this principle into full and successful operation, I may venture to set it down as something more than mere theorising. This gaseous carbon may, perhaps, be the theoretical vapour of carbon, but I do not see that it must necessarily be that vapour. I think that carbon possesses forms and varieties not yet recognised by chemists; and this gaseous carbon, or steely principle, may be one of them. This, however, is a question which I must leave others to decide, whose superior abilities and advantages fit them for the task.

Coleford, Dec. 4. ——— ROBERT MUSHET.

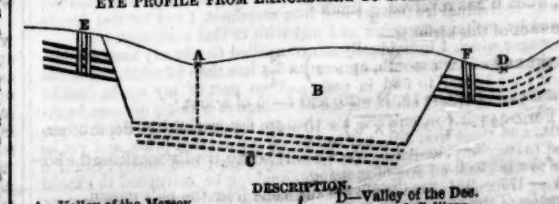
ON THE COMPOSITION OF CAST AND MALLEABLE IRON.

SIR,—I thank Mr. R. Mushet, Mr. Mitchell, and others, for their very interesting and instructive chemical communications in the *Mining Journal*, on the composition of cast and malleable iron. I have carefully watched their several discussions, with those of "Ferreus," yet amidst their "war of words" (which I am sorry to see, as the elucidation, or development, of truth is best elicited by kind and gentlemanly candour on each side), I do not find that either party has defined, or expressed, the due or real quantum of carbon contained in the different qualities of pig-iron. From what has been hitherto expressed, it would be considered that the same quantity obtained in the pig-iron of melting No. 1, and that of white, being the extreme cases produced by the smelting-furnaces, whilst it is well known to ironmakers that a considerable deal more carbon must enter into the manufacture of melting No. 1, than that of white pig-iron; or what else constitutes the difference? Will they also be pleased to give a tabular statement of the per centage of carbon contained in cast-steel, No. 1 melting, and white pig-iron; also, could they give the cause of the red shortedness of malleable iron?—A SUBSCRIBER: *Madeley, Nov.* 29.

GEOLOGY OF THE NEIGHBOURHOOD OF LIVERPOOL.

SIR,—I perceive, by your last Journal, that Mr. Gladstone, C.E., has made a communication upon the above interesting subject, and as his remarks corroborate my views of the district, I will restate them. In the year 1844, I published a *History of the Coal Trade* in this district, as well as extensive notices of the coal-fields of Lancashire and North Wales, with which I had become intimately acquainted by professional acquirement, and in that work is contained the following passage:—"I am not aware that the Lancashire coal-field is thoroughly explored, especially in the south-western division; the collieries of Halsnead, Huyton, and Prescott, are the furthest advanced in that direction, and which are approaching the new red sandstone, beyond which the country has been very little explored by boring. An opinion seems to prevail, that the red sandstone, which extends from this neighbourhood to Liverpool, and across Cheshire, is indicative of a deficiency of coal; but it does not appear that any trials have been made to such an extent as to ascertain the fact; and it is matter of curious speculation, as to whether there be any well grounded assurance against coal existing underneath the Liverpool red sandstone. I confess it does not appear to me *that there is*, and I think that deep borings will hereafter prove a continuation between the Lancashire and North Wales seams." Now, since the above publication, I have ascertained that the south workings of Torbock Colliery, near Huyton, in Lancashire, met the red sandstone in the form of a downthrow trouble, and beyond which they explored little. The workings of the Ness Colliery, also in Cheshire, were interrupted in their progress north by the red sandstone intervening, in the shape of a downthrow trouble. Now, the whole of the intervening space being covered by the red sandstone of various hues, in some cases approaching to white, and the carboniferous strata of both districts being clearly depressed at this juncture, leaves not the least room for doubting that an immense coal-field underlies the sandstone throughout the district, as represented by the accompanying profile; and the soft nature of the rocks, and the favourable position in which they lie with respect to level, would warrant an opinion, that the coal would be very advantageous for boring and mining. I, therefore, consider that the whole problem is contained in the thickness of the red sandstone in the heart of the basin, which appears to be the bed of the River Mersey, in a similar manner to which the River Dee is proved to be the centre of that part of the Welsh basin, before it is thrown down by the intervention of the red sandstone formation. If there be any truth in the above theory, how important might not the speculation turn out for a few principal proprietors of land, or capitalists, to unite in putting down a bore-hole contiguous to the River Mersey, to the depth of 100 or 150 fms., under the management of persons of practical knowledge and respectability; for, once the coal strata of the district ascertained there to exist, an unlimited supply would be laid open in the most cheap and convenient position, either for home consumption or export?—M. DUNN, Colliery Viewer: *Newcastle-on-Tyne, Dec.* 6.

EYE PROFILE FROM LANCASHIRE TO NORTH WALES.



DESCRIPTION.

A—Valley of the Mersey.
B—New red sandstone formation.
C—Supposed coal formation.
D—Valley of the Dee.
E—Torbock Colliery.
F—Ness Colliery.
G—North Wales.

COLLIERY EXPLOSIONS.

SIR,—As I regularly read your interesting Journal, I can bear testimony to the anxiety you have constantly shown to ameliorate the condition of poor colliers; but still, I do not agree with your correspondent, "Observer," "that Parliament is wanting of its duty in this important subject;" since, in my opinion, to occupy the invaluable time of Members of Parliament on any subject connected with coal-works, is manifestly wrong in principle, unless it can be clearly proved, that everything has been previously done by coalmasters and their agents, that sound judgment could suggest, to prevent, or at least lessen, the number of these sad accidents. I ask, therefore, most respectfully, if the coal-viewers in our important mineral districts have done this? Should they reply in the affirmative, I am thus led to ask, why is it that explosions are of such frequent occurrence? Surely knowledge founded on observation, science, and experience, must long ere this have done something towards improving the mode of ventilating coal-works. But is it really so? Let the cries of orphans, and the tears of widows, answer. But whilst I am free to admit that accidents often occur from a want of proper caution on the part of the workman, still I do think, if there were less exclusiveness, prejudice, and self-esteem observed by mining agents in general, improvements would have a better chance, and poor colliers greater protection.

Bonehill Cottage, Dec. 5. E. BAGNALL.

SAFETY LAMPS.

SIR,—The requisition of Mr. Bagnall, together with other correspondence, in your Journal, upon the importance of rendering the safety-lamp safe under all circumstances, and improving the light also, calls forth the following observations with respect to the safe pit-lamp in course of construction by myself. During the last seven months it has cost me a great deal of thought, trouble, and expense; and, as the lamp is in course of registration, you will excuse any further description than pointing out the advantages it possesses, which may be placed under five heads.

1. It gives four times the light of a double-gauze Davy, with the same security—the glass through which the light is shed being secured and tested in the course of its construction far beyond the common casualties of a mine: such light is concentrated, and capable of being directed to the spot most needed.

2. The gauze is protected by a shield; the principle of construction is such that the lamp may be moved at any rate you please; or force two currents in opposite directions against it, even with a bellows, within one inch of the gauze, and it neither biases the flame against the side, nor yet extinguishes it, but still admits the same quantity of air as the meshes of the gauze is capable of receiving. It has the same effect with a jet of gas, defying all attempts to explode it, as the greater the velocity, either air or gas, so the tendency to escape increases otherwise than enter the gauze. The shield also acts as a guard against accidents to the gauze, and in a great measure prevents the gauze becoming foul, at the same time admits of seeing when the lamp is full of flame.

3. The mode of raising *and trimming* the wick is effected in a safer way than heretofore, as a can-full of oil and cotton is capable of being burnt out without unscrewing the lamp once—that is, if the wick is raised when required by the workman. The arrangement made for these two operations is just as simple as the Davy, works with more truth, and is not so liable to become deranged.

4. That instead of using a complete lock, liable to get out of repair, to lock up the lamp, a simple and cheaper arrangement is made, by which the moment a man attempts to unscrew the gauze from the lamp, the flame is extinguished—so that all danger then ceases, and the man found in the dark should be brought to account: as I have before observed, there can be no excuse to unscrew the lamp from the time it is filled till it is consumed. The collier, if so minded, cannot prevent the light being extinguished, by holding the lamp on one side, or even turning it upside down.

5. It is just as portable, and as easily managed, by the collier as the Davy, and, in fact, easier. It may exceed the weight of the Davy a few ounces, and in cost about 1s. 6d. or 2s.

I think I have now said sufficient as to its advantages, and must await the day when I shall be in a position to forward you one to judge for yourself; also to give your readers a more detailed description: but do not let it be said, "*I claim in toto*" the invention of a safe pit lamp; but that I ought, and do, feel greatly indebted to my predecessors for the time, money, and anxiety they have expended on this little instrument—the praiseworthy Clanny, for instance, *the father of all safety-lamps.*

One observation more, on the general adoption of protected lights, as recommended by one of your correspondents, would, I fear, leave good ventilation entirely disregarded, and prove a serious drawback, not only upon the health of the miner, but to the economical working of the coal mines generally. Your correspondent will find on inquiry, that the "system he lays claim to *in toto*," as far as regards the lamp discipline, has been practised in the north ever since lamps were invented—*i. e.*, in pits where lamps are wholly used.—H. JOHNSON: *Dudley, Dec.* 5.

THE SAFETY LUNAR LAMP.

SIR,—I read with much pleasure the remarks of Mr. Crane, on the adoption of a system of security in our coal mines, in last week's *Mining Journal*, and consider the public are much indebted to that gentleman for the gratuitous manner in which he has come forward, and given up his candle and oil lamps, without the least idea of making profit by it, as he might have done had he taken out a patent for the same. I have inspected one of these candle safety-lamps, and cannot see, with moderate exertions on the part of the viewers, what is to prevent their coming into general use, and thus diminish the number of those awful accidents which are now continually occurring through recklessness, either by carrying naked candles through foul portions of the mine, or taking off the tops of the lamp to light their pipes, or to obtain more light. The front glass of these candle lamps are 6 in. by 4½; and the rays of light are reflected from a burnished tin back, with a brilliancy far superior to a naked candle, and to which the "Davy" is but a glow-worm's light; while, in point of safety, it is quite equal to the latter—the principle being the same, and the flame being in every direction protected by the wire gauze. It is, Sir, to be hoped that some individuals connected with collieries, possessing some little more philanthropic feeling for their fellow-creatures than usual, will endeavour to enforce the regulations recommended by Mr. Crane; and sure I am, if once adopted, so safe would they be found to act for the security of life and property, that in a few months scarcely a colliery in the kingdom but would adopt them.—LUMINO: *Darlaston, Dec.* 6.

PRACTICAL MINING.

SIR,—I beg to correct an error of "J. C. B.," of Wigan, as to a form for determining the place of meeting in any given pit of two flat ropes, winding upon the same shaft. For the information of those who are not versed in the matter, it is well to explain, that he does not refer to the place of meeting of the ropes, but to the place at which the full basket of coal attached thereto, when ascending the pit, meets the empty basket descending.

Let d = the depth of the pit, c = the length of rope contained in the first coil of rope on the drum, let i = the difference of the length of each successive coil of rope, and N = the number of coils, when the full basket has reached the pit's mouth.

Then d = the sum of an arithmetic series, whose first term is c, and the greatest term $C + N - 1 \times i$, whence—

FORMULA 1.—$(2c + N - 1 \times i) \times \frac{N}{2} = d$, the depth of the pit.

Next, the ascending and descending baskets being attached to ropes, coiling upon two drums, which revolve in equal times, the place of meeting is distant from the pit's bottom = the length of rope contained on the drum, when it has revolved $\frac{N}{2}$ times.

The sum of this series is—

FORMULA 2—$\left(2c + \frac{N}{2} - 1 \times i\right) \times \frac{N}{4}$.

EXAMPLE.—Let C = 15, N = 20, and i = ·6 of a foot.

By Formula 1.—$\left(30 + \overline{19 \times \cdot 6}\right) \times 10 = 414$ feet, exactly the depth of pit.

" " 2.—$(30 + 9 \times \cdot 6) \times 5 = 177$ ditto, the distance from the bottom of the pit to the place of meeting.

414 — 177 = 237, the distance of the same from the pit's mouth.

Goulden Terrace, Dec. 5. JOHN CUBB.

PRACTICAL MINING.

SIR,—Your correspondent, "J. C. B.," in the last week's *Mining Journal* has given an incorrect formula for finding the place of meeting in a pit of two flat ropes, winding upon drums of the same diameter. He gives the number of revolutions, N, to bring this rope from the pit bottom = 20. Now, it will be evident that the point of meeting, or n, must be at $\frac{N}{2}$, or at 10 revolutions. But he gives the circumference (C) of the drum, when the rope is up, incorrectly, which should be equal to $c + N - 1\ i = 26$ feet 4 inches, instead of 27 feet.

This corrected "n," will be = $\frac{d}{C + c} = \frac{\cdot 414}{26 \cdot 4 \times 15} = 10$; and the height of the meeting place will be . . . . . 177 ft.

Depth to ditto 337

Total depth 414

Dec. 6. B.

WATER-WHEELS.

SIR,—Perhaps some of your correspondents will be good enough to inform me, in your next week's Journal, what is the difference of power obtained between driving a 35-ft. water-wheel, by the water going over it, and by employing a 40-ft. wheel in the other case, and bringing the water on the breast at 35 feet.—J. W. W.: *Bodmin, Dec.* 5.

THE BRITANNIA TUBULAR BRIDGE.

SIR,—I beg to call your attention to an error which appeared in your Journal of last week, in a paragraph headed "The Britannia Tubular Bridge." It is therein stated, that the whole "experiments and processes" (by which I understand the carrying out of the works) are intrusted to Mr. E. Clarke, C.E. This is incorrect, inasmuch as Mr. Clarke's department is confined entirely to the construction of the wrought-iron tubes, and the cast-iron connected with them, required for their lifting and permanent fixing in the masonry; the masonry itself, and all the scaffolding on which the tubes have or are being built, including the scaffold, you describe in the same paragraph, form a distinct department, unconnected with Mr. Clarke; I might add that, in all probability, the floating of the tubes will, as was the case at Conway, be entrusted by Mr. Robert Stephenson to Capt. Claxton, and the lifting to Messrs. Easton and Amos.—JUSTICE.

December 6.

HYDRAULIC PRESSURE ENGINE.

SIR,—The *Mining Journal* of last week informs your readers, that Mr. Joseph Glynn read a paper at the Society of Arts on hydraulic pressure engines, and illustrated the description of those machines by drawings and models—showing that they were first made use of in Germany, and then, about the year of 1770, in this country. If I am rightly informed, Mr. Glynn took some pains to develope to the society the various improvements made in hydraulic machinery since that period, beginning with Mr. Westgarth's, erected in Northumberland, then Mr. Smeaton's in 1779, Mr. Trevethick's in 1803, and one of immense magnitude, made at the Butterley Iron-Works, and erected at the Alport Mines, Derbyshire, in 1842. It is stated Mr. Glynn dwelt very forcibly on the merits of the Alport engine, pointing out to the society how effectually the great difficulty of concussion has been overcome by the introduction of a peculiar valve, which the inventor has found entirely to answer the purpose for which he had taken so much pains to construct it. Mr. Glynn appears to recommend the Alport hydraulic engine for all purposes where facilities offer themselves; and, of course, he is perfectly justifiable in doing so, if the engine's effective power be 80 per cent., at which Mr. Glynn has computed it. I learn, from another source, which I have no reason to doubt, that the expenses of the Alport hydraulic engine yearly does not amount to more than 1-5th of what would be necessary to do the same amount of work by steam. We are also told that the Alport engine is a 50-in. cylinder, 10-ft. stroke, the pitwork is 42-in. diameter, lifting 120,000 lbs. per stroke, making five strokes per minute, which would be about 433-horse power, and has been continually at work for the last six years, without any derangement of the working parts. These, Sir, it appears, are some of the facts connected with the reciprocating hydraulic engine at the Alport Lead Mines, which has been supported by Mr. Glynn, the late George Stephenson, Prof. Gordon, Mr. Jordan, and many others, whose engineering abilities have done credit to the present age.

A beautiful model of this engine may be seen at the Museum of Economic Geology, executed under the superintendance of the ingenious and talented Mr. Jordan, late of that place. I believe Mr. Hunt is the present manager of the Museum of Economic Geology, who is ever ready to give every information required.

Now, Sir, I think it is pretty clearly proved by the list of gentlemen above named, and by six years' trial, that this engine is superior to any other hydraulic engine we have account of. But what is very singular, at the Society of Arts, last week, and also in the *Mining Journal*, is the concealment of the inventor's name, and which would have been hid from the Society if it had not been for a champion behind the scene in the person of Mr. Jordan, whose noble mind is always ready to do to others as he would they should do unto him. This gentleman is acquainted with the various difficulties the inventor had to contend with, and very properly brought them before the society, which I am told gave much satisfaction; at the same time stating to the society, that the engineer at the mine was the real inventor of this useful and cheap machine, declaring to the assembly that the invention was not patented, and was free for the world's adoption.

Bakewell, Dec. 6. A SUBSCRIBER.

IMPROVEMENTS IN OBTAINING AND APPLYING MOTIVE-POWER.

SIR,—In answer to your correspondent, "R. M.," I may state, that it is our intention to publish, in the form of a pamphlet, an "illustrated" description of my new mode of applying steam for propelling railway trains, in which its comparative advantages will be fully gone into; meanwhile, it may not be uninteresting to your readers to know that the invention has already received the approval of some of the "eminent engineers;" and it is not improbable, that a company will shortly be formed to test its merits; the portion of the invention, however, that has met with the greatest approval, is the one in which the engine is entirely dispensed with. In this arrangement a new mode of generating steam is employed; and although the boiler has but *one* flue, there is scarcely any limit to the quantity of water that may be evaporated in a given time, with much less fuel than at present required, the whole of the heat being made available.

The following explanation will enable your readers to understand the principle:—On the signal being given to start, the valve of the piston will be opened, and the contents of the tube, rear of the piston, discharged into the vacuum pipe. A partial vacuum being thus produced in the propelling tube, the train will be put in motion, and, as the tube advances from the first piston, it will be charged with steam from the boiler. On the pressure falling below 15 lbs., the draught of air through the fire *into the boiler* will commence, the intensity of which, being regulated solely by the degree the air is in excess of the steam, never can be either too much or too little. On the heated gases entering the boiler, they will be deprived of their excess of caloric by a constant jet of water—a portion of which, not being converted into steam, will fall to the bottom, and keep the water to a certain height, and prevent injury to the metal. JOHN WESTON.

Portland Town, Dec. 5.

STEAM-CARRIAGES ON TURNPIKE-ROADS.

SIR,—Having long taken an interest in this subject, and years ago watched the progress of the inventions and improvements of Hancock, Gurney, Squires, and others, which appear long since to have fallen into oblivion, I hailed with pleasure the first notice you gave of the completion of an improved road locomotive by Sir James Anderson, and of the probability of his very shortly running it on one of the roads out of London. It now appears to me, from a notice in your last week's Number, that we are as far from a practical illustration as ever, it being now necessary to form a company—an undertaking which I fear Sir James and his friends will find much more difficult than they imagine.

Notwithstanding the present very unsettled state of railway property, when from the talk of raising fares, and running fewer trains, it would appear a most desirable moment for such an undertaking, they may rest assured the public will not take up shares like "buying a pig in a poke," until they see the carriage mechanically successful, and Sir James thus give some guarantee that he is enabled to fulfil all that he promises to undertake. If this gentleman has completed a carriage on this new principle, surely it would not be a very ruinous expense to run the same two or three times a-week, to show the public its performances. If he has not completed such carriage, it is quite impossible that he can himself be aware whether a mere plan will be attended with successful results in practice, and he will surely find the capitalist will keep at a respectful distance, until satisfied of his practical success. I have no doubt, if he can obtain a speed of 10 miles an hour with say 20 passengers, and secure a powerful and undertaking steering apparatus (the points in which all have hitherto been defective), he would find the shares eagerly responded to, and the carriages taken up in all parts of the kingdom, particularly by railway companies, in lieu of short branch lines.—A. Z.: *Brompton, Dec.* 7.

[In reply to "A. Z.," we refer him to the outline of the proposed company, and cannot but think a large proportion of the public, especially those who reside near turnpike-roads, will readily risk the trifle required, to test the efficiency of the proposed scheme of introducing steam-carriages on turnpike-roads.]

STEAM CARRIAGES ON COMMON ROADS.

SIR,—I have just returned from the neighbourhood of Gloucester and Cheltenham, where I have heard complaints without end of the inconveniences and additional expense which parties, in the habit of attending those markets, are subjugated to, in addition to the discontinuance of the daily return tickets on the railway; and having mentioned to several parties that a remedy to this evil will shortly be found in the establishment of steam-carriages on common roads, the information was hailed with approbation, and apparent strong desires, to do everything in their power to promote its success.—OBSERVER: *Gray's Inn-road, Dec.* 8.

THE COPPER TRADE.—No. 1.

[From the *West Briton.*]

It is impossible to deny, although there may be a good deal of exaggeration on the part of a portion of the press, for particular purposes, that the copper-mining and smelting interests are estranged from each other. I see this alienation with much regret, and think there is blame on both sides. On the side of the mining interest there is blame for the animosity countenanced towards the smelting companies, and for the offensive use of such terms as monopoly, dishonesty, oppression, &c. This course of proceeding does not appear to me either wise or necessary, in order to promote a fair and legitimate object—viz.: the establishment of a new smelting company, instead of the unfortunate Miners' Company, now defunct. On the side of the smelting companies, there is blame, for the haughty stand taken, induced, no doubt, by the unfounded imputations on the honour and honesty of their dealings, but which seems to set the feeling of the mining interest at defiance, and to refuse to vouchsafe a word of explanation.

My intimate acquaintance with the copper trade, from my early years, and my present disconnection with, and independence of it, coupled with the interest I feel in all that affects my native county, induce me to offer some remarks to those interested in the subject.

Like many who interfere in others' disputes, I may myself come in for blame, and may probably displease both parties; but I trust, by the sobriety of my style, and an entire absence of personality, to give no intentional offence.

There exists a surprising ignorance of the plainest facts and details of the copper trade; and I can only account for this, by supposing that those to whom the subject is unfamiliar, get mystified by the use of such unknown terms as standard, returning charges, surplus, variation table, &c.

To me all these details are naturally familiar, from early acquaintance and use. Having had for my master and friend the late Mr. John Vivian, it was my fair lot to sit in my youth at the feet of the Gamaliel of the copper trade, and to become an adept in all its so-called mysteries. I willingly hope, therefore, that I may be able clearly to explain some points of detail that appear to puzzle the uninitiated—why, I hardly know.

But, to show that some explanation, even of the simplest facts is not unnecessary, there needs only the following extract from a speech made by James Wyld, Esq., M.P., at a meeting of the new British Smelting Association, taken from the report in the last *West Briton*. The hon. gentleman is made to say—"Now, the two great objects of this company would be, to secure the purchase of ores at the fair weight of 20 cwts. to the ton, and to enable the copper raiser to be a member of the company, and a participator in that 2*l.* 15*s.* which he thought was an enormous charge upon the miner."

It will thus be seen, that the hon. Member for Bodmin, the chairman and exponent of the objects of the new smelting company, holds out two leading inducements to the mining interest to embark in the undertaking—viz.: that copper ores are to be sold per 20 cwts., instead of 21 cwts., and that the 2*l.* 15*s.* per ton returning charges, now said to be *borne* by the miner, is to come back again to him as a shareholder.

The hon. Member, no doubt, spoke as he was instructed and believed, but he spoke in error.

As no one would give as much money for 20 cwts. of copper ores as for 21 cwts., it must be obvious that the miner would be no gainer at all, if whilst the weight were reduced 5 per cent. the price were reduced 5 per cent. also. Nay, I think I can show he would be a loser. These customary rates are persisted in for some reason, and I will endeavour to explain what that reason is. Man is a creature of habit, and the carriers of the ores to the shipping port, and the masters and owners of vessels that carry the ores to Wales, being men, are partly guided by habit. There has been, for a length of time, a usual land carriage, and a usual sea freight, which vary, generally by 6*d.* or 1*s.* per ton between summer and winter. Now, these parties have never known any other ton in their trade than 21 cwts.; if the ton had been reduced, and called 20 cwts., it was thought that the sea freight, generally 4*s.* per ton, would not have been reduced proportionably, or to about 3*s.* 9½*d.*, but would have continued at 4*s.*, although 1 cwt. less was carried, and so with the land carriage. Many trades have customary weights, which have been maintained for the reasons I have stated, although it is the evident intention of the Legislature that there shall be one weight and one measure throughout the land. Pig-iron is sold in Staffordshire by the 20 cwts. of 120 lbs.; coal is generally worked in Wales at 22½ cwts. to the ton, and thus these customary weights are continued, because it would be difficult to adjust carriage, wages, royalties, &c., to a reduced denomination.

Now, it appears to me, that if the alteration were made, the only effect would be, that 5 per cent would be added to the cost of carriage and freight, and that the miner would be so much worse off. But, beyond that, I do not see that it would make the least difference to either party, if copper ores were hereafter to be ticketed for per 20 cwts. instead of per 21 cwts.; and I would recommend to the smelters, if a majority of the copper mines joined in requesting the alteration, that it should at once be made. It would take but little trouble to adjust their bidding prices to the alteration.

Then, as to the mysterious 2*l.* 15*s.* per ton returning charges, which is stated to be so oppressive to the miner; really, the widely-spread error on this point shows how much men are led by words instead of things—in short, how little they think. But what really does take place as to this pretended allowance? Is it not thus? After the sale by ticket is over, and the amount of money the ores have fetched, and of the copper in the ore, is ascertained by mutual comparison, the parties proceed, with the pens of ready reckoners, to calculate what the cost of the copper would be per ton, *supposing* it took 2*l.* 15*s.* to convey and smelt each ton of ore—and thus the *standard* of the day appears! What allowance is there here? The sale of ores is a net sale, for amounts in money payable in one month, by bill at a month, and the miner allows not the smelter one farthing; the whole calculation is a fiction, which is continued because it has long been practised, and which shows the variation of the ore market. If, indeed, there were some mint where the smelters could go and get for their copper some standard value, one could understand the mystification under which so many obstinately labour; but thrown, as the smelter is, on the general market, to sell as well as he can, the mistake of the hon. Member would surprise me if it were not so general. Let us suppose that the parties separated, as they used to do at the Swansea ticketings, without calling in the assistance of the ready reckoners, and that another standard were never calculated, surely the situation of the parties would be exactly what it is now, and the only inconvenience would be, that those who have occasion to consult the sales of copper ores would lose their comparative guide.

I have often thought this practice of publishing a fictitious price, or standard for copper, were better honoured in the breach than in the observance, and as it is obnoxious to many of the miners, I would suggest that the practice be discontinued. And if discontinued, what would become of the enormous charge, so burthensome to the miner? The sale of ores would then appear nakedly and simply as it really is—a sale of so much mineral for so much money, the same as a public sale of sugar, or any other commodity. Supposing, for the sake of further elucidation, if any be necessary, it were customary after every sale of brown, or moist, sugar, to add so much for every ton sold, and thus to show, an assumed price for refined or lump sugar, what real effect would any such calculation have, except to show the variation of market? And so in the case of the standard for copper, arrived at by adding 2*l.* 15*s.* for each ton of ore sold, to the amount of the sale, and dividing by the tons of copper in the ores, what possible charge can the practice entail on the miner? Or what possible benefit would he derive if the practice were altogether discontinued? But, however erroneous may be these impressions, and the representations founded on them, on one point there is no mistake, and that is, the feeling of the mining interest, that the profits of the copper smelters are excessive.

Ystalyfera, Nov. 27. J. PALMER BUDD.

COPPER SMELTING IN AMERICA.—A letter from New York, dated Nov. 22, says:—"It is naturally to be expected that with time America will take to herself manufactures and processes hitherto undertaken for her in England and elsewhere. This is daily to be seen going on. Copper smelting is now carried on here to a considerable extent; until recently all was done in England or Wales; 500 tons of copper arrived here in one vessel last week direct from Valparaiso, and 200 tons in another, both in one day—these cargoes are worth about $800,000. Hitherto the copper ore has been conveyed to England, and there mixed with spelter, and then shipped here, either in bars or manufactured; with these cargoes commences the change, so it is also with many other commodities; whether successful or not, the Americans are certain to try what can be done."

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY 36

BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages, and ship cargo apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street Southampton.

NOTICE TO SHIPPERS OF GOODS AND PARCELS, per PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY'S STEAMERS, to INDIA and CHINA.—GOODS and PARCELS sent direct to the company's parcel office, on or before 6 P.M., on the 17th of each month, are forwarded at less cost to shippers than when sent through any intermediate channel. Cases must not exceed 112 lbs. weight each, for Aden, Ceylon, Madras, Calcutta, and China; and 40 lbs. each case for Bombay. No package for India or China can, under any circumstances, be shipped at Southampton, unless it be cleared through the Custom-house, and placed alongside the steamer by noon on the 19th of each month.

Detailed particulars can be obtained on personal application, or by writing.

Parcel Department, 122, Leadenhall-street. 37

KENT AND SUSSEX

INDURATED AND IMPERVIOUS STONE COMPANY.

[LICENSED UNDER HUTCHISON'S PATENTS.]

Capital—£20,000, in 2000 shares, of £10 each. 38

[*Provisionally Registered, pursuant to the Act 7 and 8 Victoria, cap.* 110.]

First call £2 10s. per share, on complete registration.—No further call to exceed £2 per share at one time, with three months' previous notice.

ONLY ONE-HALF THE CAPITAL WILL BE REQUIRED FOR FIRST YEAR'S OPERATIONS.

PROSPECTUS.

The object of the promoters of this undertaking is, to raise capital to purchase and to carry out established works, on an extended scale, the advantages of which consist of their being held on long lease, and situated close to Calverley Quarry, with an inexhaustible supply of soft sandstone, water, and fuel on the spot, with railway communication adjoining, for transmission of the company's produce to the metropolitan and other markets.

Capitalists will find this investment to be free from mystification—ensuring them a large and regular dividend out of actual profit, *and not from capital.*

Soft sandstone costs, in the block, 80 per cent.—is sawn into paving and other slabs, 65 per cent.—and is worked at full 50 per cent. less than either the Portland or Yorkshire stone. The ingredients for indurating and rendering *soft sandstone and other absorbent materials* impervious to wet, frost, vermin, &c., are of such moderate cost, as to permit the *indurated* materials to be sold at from 20 to 50 per cent. less than Portland or Yorkshire stone for all building, hydraulic, paving, decorative, and monumental work—still yielding a profit of 50 per cent.

The cost of license for the exclusive working in the counties of Kent and Sussex, with liberty to supply all other markets, also lease, works, stock, utensils, &c., is only £2 10s. per share—half of which is to be invested with the proposed company, not transferable for a period of three years.

The works are administered at a moderate expense—the produce never deteriorates—and the same plant, utensils, &c., are applicable for the working of the various branches connected with the patents—the produce of which is unequalled in effect, durability, and cheapness.—The proposed company's accounts are to be audited, and dividends to be declared every successive six months, from the date of complete registration.

Application for shares (by letter) to be addressed to Mr. William Hutchison, Tunbridge Wells; or to Messrs. Hutchison, Wilford, and Co., East Temple Chambers, 2, Whitefriars-street, Fleet-street, London, where specimens and particulars may be inspected; also, at the patentee's works, Calverley Quarry, Tunbridge Wells, Kent.

PLANTAGENET GUARD RAZOR—140, STRAND.

RAZORS FOR THE NOBILITY AND GENTRY.
RAZORS FOR THE ARMY AND NAVY.
RAZORS FOR THE UNIVERSITIES.
RAZORS FOR THE CLERGY.
RAZORS FOR THE BAR AND LEGAL PROFESSION. 39
RAZORS FOR THE MEDICAL PROFESSION.
RAZORS FOR THE MERCHANT AND EARLY RISER.
RAZORS FOR THE BLIND.
RAZORS FOR THE NERVOUS AND SICK.
RAZORS FOR THE TRAVELLER.

Fitted with a Patent Moveable Guard, rendering the operation of shaving a perfect luxury, and preventing the possibity of cutting the skin.

The most nervous man can shave himself in bed in the dark, or in a railway carriage, or on board a steam-boat, without a glass, and not cut himself, with the

Patent Plantagenet Guard Razor,

Price ..... 6s.—*Best Ivory Handles* ..... 8s.

Guard Razors are fitted for right-hand shaving exclusively, and others for left-hand shaving exclusively. DEPOT, 140, STRAND.

The Razor and Guard will be forwarded free to any part of Great Britain or Ireland, upon receipt of the price of the article required, by Post-office order (made payable to C. Stewart and Co.) with 6d. extra for carriage.

Every Razor and Guard is stamped with the patentees' signature, "C. STEWART and Co." to imitate which is forgery.—A liberal discount allowed to the trade and to captains of vessels, shipping and country agents.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS. 40

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom, of the shaft when the rope or chain breaks: in this case the apparatus is *self-acting*.
2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is *self-acting*.
3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally *certain*.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 9, College-place, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

FANSHAWE'S PATENT INDIA RUBBER WATER-PROOF MATTING (the only really waterproof floorcloth) and PATENT FLEXIBLE PAVEMENT, may be had of the manufacturer, J. H. MORRIS, 6, Staple-street, Long-lane, Bermondsey. 41

Works by ANDREW PRITCHARD, Esq., M.R.I.

ENGLISH PATENTS, being a Register of all Patents for Inventions in the Arts, Manufactures, Chemistry, Agriculture, &c., during 45 years of the present century, price 18s.

MICROSCOPIC ILLUSTRATIONS, with descriptions of the New Microscopes, and instructions for use, Third Edition, price 7s. 6d.

A GENERAL HISTORY OF ANIMALCULES, price 5s. 42

London: Whittaker and Co., Ave Maria-lane.

Under the immediate sanction and patronage of His Royal Highness PRINCE ALBERT
Will be published on the 1st of January, 1849,

THE MINING ALMANACK: Compiled and arranged by HENRY ENGLISH—containing Original Papers and Illustrations, with comprehensive Statistical and Tabular Matter, treating on Geology, Metallurgy, Mineralogy, Practical Mining, Engineering, Mechanics, and the various other branches of science connected therewith. 43

Communications are requested to be addressed to Mr. English, 25, Fleet-street.

ENLARGEMENT OF THE "WEEKLY DISPATCH."—This JOURNAL, which is unrivalled, will be ENLARGED, on and after Sunday, the 7th January, 1849, to SIXTEEN PAGES, containing 64 columns, of the same size and form as at present, without any extra charge. The *Dispatch* will, therefore, answer the purpose of four newspapers. An edition of the *Dispatch* is published at Five o'clock every Saturday morning, for transmission by the first train and morning mails, so that persons residing in towns 250 miles from London may receive it the same evening. An express edition of the *Dispatch* is published every Sunday afternoon, containing news *direct* from Paris, and other parts of the continent, up to Eight o'Clock on Saturday evening.—Orders should be given early to Mr. Richard Wood, 139, Fleet-street, or to any of the newsvenders, in town and country. 44

GUTTA PERCHA.—BOOTS and SHOES, SOLED with this MATERIAL, being eminently non-conductors of heat, are exceedingly pleasant wear for tender feet, and however slight the soles, impenetrable by showers or salt-water—therefore, invaluable to SPORTSMEN, TOURISTS, and VISITORS to the SEA-SIDE. The idea that atmospheric heat has any detrimental effect upon Gutta Percha is a *fallacy*, and in no known instance have soles failed in adhering, which may not be ascribed to neglect of the company's printed directions. The more recent productions in Gutta Percha are elaborate cornices, highly enriched console tables, mouldings, panellings, picture-frames, &c., in every variety of finish and relief, dessert services, flower vases, fountains, inkstands, medallions, buckets, bowls, bottles, paper weights, pen trays, &c. Tubing of all sizes, from 1th of an inch to 4 inches diameter. For lining cisterns, sinks, galvanic troughs and batteries, Gutta Percha offers innumerable advantages; and, being impervious to water, unaffected by acids, alkalies, &c., it may fairly be said to be the discovery of the age.—May be had of the GUTTA PERCHA COMPANY, 18, Wharf-road, City-road, and of any of their wholesale dealers. 45

COUGHS, COLDS, INFLUENZA, &c.—This week upwards of 50 testimonials have been received of the efficacy of Dr. LOCOCK'S PULMONIC WAFERS.—From Mr. James Drury, medicine warehouse, 224, Stone-bow, Lincoln:—"March 10, 1847.—Gentlemen: I am authorised by several ladies and gentlemen (whose names I can give, if required) to state, that Dr. Locock's Wafers have proved of the highest efficacy to them for colds, coughs, hoarseness, wheezing, sore throat, influenza, &c.—(Signed) JAS. DRURY." DR. LOCOCK'S Wafers give instant relief, and a rapid cure of asthma, coughs, and all disorders of the breath and lungs. To singers and public speakers they are invaluable, for clearing and strengthening the voice—they have a pleasant taste.—Price 1s. 1½d., 2s. 9d., and 11s. per box.—Agents: De Silva and Co., 1, Bridge-lane, London; sold by all medicine vendors. 46

ROYAL COLLEGE OF CHEMISTRY,
HANOVER-SQUARE AND OXFORD-STREET, LONDON.

The PRACTICAL COURSE of INSTRUCTION in this INSTITUTION is under the direction of Dr. A. W. HOFMANN and assistants.

The PRESENT SESSION commenced on Monday, the 2d of October, and will END on the 28th of FEBRUARY, 1849.

The FEE for students working every day during the session, is	£15	0	0
,, ,, ,, four days in the week	12	0	0
,, ,, ,, three days ditto	10	0	0
,, ,, ,, two days ditto	7	0	0
,, ,, ,, one day ditto	5	0	0

Hours of Attendance from Nine to Five.

Further particulars may be obtained on application to the secretary. 47

WILLIAM JOHNSON, Secretary.

RIDER'S RAILWAY BRIDGE.—TO RAILWAY COMPANIES.—This BRIDGE has now been for 18 months in DAILY USE (having a double track) on the HARLEM RAILWAY, in the State of New York, United States. The Erie Railway and the Newhaven Railway Companies have likewise adopted it. 48

Several other bridges, for ordinary purposes, are also being constructed.

The advantages of this over all other iron bridges hitherto invented, consist in the small amount of iron required, compared with the strength obtained, in avoiding the use of any surplus weight of material, in the consequent economy of its construction, and also from its lightness, easy mode of putting together, and facility of transport, in its peculiar adaptation for foreign use.

As regards economy, it can be erected at a cost not exceeding that of a WOODEN BRIDGE, of equal capability.

Applications to be made to Mr. Moulton, the patentee, Bradford, Wilts.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, *MILLWALL, POPLAR.* 49

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary processes. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

TO CONSUMERS OF GAS.—The PATENT GAS-LIGHT MONITOR—ADAPTED to EVERY DESCRIPTION of BURNER, and SUPPLIED at a COST placing it within the REACH of EVERY CONSUMER—regulates the flame of gas-lights to any required height—economising the consumption, and preventing the danger and inconvenience arising from the flaring of lights. 50

PATENTEE'S OFFICE, 20, KING-WILLIAM-STREET, CHARING-CROSS.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT is the PRODUCT of a PATENT PROCESS, and possesses PECULIAR and VALUABLE PROPERTIES, not otherwise attainable.

Its colour (as at present produced) is a rich *purple-brown*. It is perfectly free from the deleterious qualities of white lead.

It surpasses all other paints ever yet discovered, in point of *durability* and *economy*. Two coats of this paint are more than equal to three of any other description. 51

From its chemical composition, it is pre-eminently adapted for covering *iron*; also *wood*, and *stuccoed*, or *brick buildings*. The process by which the base of this paint is produced, makes it impossible that any change should take place in its composition from atmospheric influence. Its identity with iron secures it from galvanic action, so fatal to the durability of lead and other paints on iron work.

It has been exposed on shipping to the action of sea-water, and of the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for more than three years, without change.

Its *cheapness* and *strength* render it peculiarly suitable for *iron bridges, roofs*, and *railings, farm buildings*, and *shipping*. It will also cover creosoted timber.

Price, by the ton, £25, delivered in London, exclusive of packages.

Agents will be appointed for the principal towns in the United Kingdom; in the mean time, orders may be addressed to the offices of the company, No. 20, Fenchurch-street, London. JOHN A. WEST, Secretary.

PATENT MINERAL PAINT.—After three years' trial on the sides and bottoms of iron and timber-built ships, this PAINT has proved itself equal to copper as a protection from vegetation, as well as the sea-worm and all other adhesive matter. It is also peculiarly adapted for spouts and gutters, iron railing, felt or wooden roofs, tarpaulings, damp walls, or any other surface that requires to be made waterproof at a small cost, and is ready for use, in casks of 2 to 20 gallons. 52

Brilliant black, 2s. per gallon—Rich brown, 2s. 9s. per gallon.

EMERSON'S PATENT LIQUID CEMENT.—This valuable and economic PAINT is so adhesive, that it will cling to any surface—brick, Roman cement, and all other plastered work; and, being a rich cream colour, is more pleasing and natural in appearance than oil, and at an *eighth* of the *cost*. It is ready for use, will dry in a few hours, and possesses the property of protecting the walls as well as Roman cement. Sold in casks of 1 cwt. 2 cwts., and 3 cwts., at 8s., 15s., and 21s. per cask. GEO. LEAR & CO., Sole Agents, 16, Basing-lane, Cheapside.

DESICCATING OR DRYING PROCESS (DAVISON and SYMINGTON'S PATENT).—TO MANUFACTURERS and OTHERS requiring DRYING POWER.—This PROCESS has been pronounced by those who have adopted it nearly three years, as "surpassing every thing before seen or tried for efficiency, purity, cleanliness, cheapness, expedition," and, it may be added—safety. It has already been applied to no less than 15 distinct branches of trade, with equal and most perfect success, from the drying of the thinnest paper, or the most delicate fabric, to the roasting of coffee, and such like substance; in other words, generating a continuous controllable temperature, varying from that of the atmosphere to 500° and 600°, if required, and attended with many important advantages not obtainable by hot flues, cockles, steam, hot-water pipes, &c.—For licenses, and other particulars, apply at the offices of the Patent Desiccating Company, 41, Gracechurch-street, City. ANGUS JENNINGS, Secretary. 53

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE, 54

or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

RAILWAY AND OTHER IMPORTANT RECORDS, EFFECTUALLY PROTECTED FROM DAMP AND VERMIN.

Extract from the Appendix to the Second Report of the Commissioners on the Fine Arts.

"In 1839, I superintended the construction of a house, of three stories, on the Lac d'Enghein. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of

SEYSSEL ASPHALTE,* 55

less than half an inch thick, over which coarse sand was spread. Since the above date, no trace of damp has shown itself round the walls of the lower story, which are, for the most part, painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ inches above the external surface of the soil, and only 19½, at the utmost, above that of the sheet of water. The layer of asphalte having been broken and removed, for the purpose of inserting the sills of two doors, spots, indicating the presence of damp, have been since remarked at the base of the door-posts."

The DIRECTORS of the SEYSSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of ENGINEERS and ARCHITECTS the application of the ASPHALTE of SEYSSEL, as the *only effectual* mode of preventing damp in basement floors, and water from percolating through the ARCHES of a VIADUCT.

The arrangements of this company enable works of any extent to be executed with the greatest promptitude. I. FARRELL, Secretary.

SEYSSEL ASPHALTE DEPOT, STANGATE, LONDON.

ESTABLISHED 1838.

* This method has been adopted at the New Houses of Parliament.

SIR WILLIAM BURNETT'S PATENT DISINFECTING FLUID, FOR THE DISINFECTION OF SICK-ROOMS, CLOTHING, LINEN, &c

THE PREVENTION OF CONTAGION.

THE PRESERVATION OF ANIMAL MATTER FROM PUTRESCENCE.
THE PURIFICATION OF BILGE-WATER, CESSPOOLS, DRAINS, AND WATERCLOSETS, &c. 56

As a DEODORISING and PURIFYING AGENT it is the BEST, the CHEAPEST, and the MOST HEALTHFUL.—See Third Report of Metropolitan Sanitary Commissioners to the Queen, dated July 13, 1848:—"The operation [of cleansing cesspools by Sir Wm. Burnett's fluid] has now been performed in more than a THOUSAND instances, in every part of the metropolis, without, so far as we have been able to ascertain, any complaint as to the nature of the process, or of its being followed by any injurious consequences; on the contrary, there is positive and decisive evidence of more direct and immediate effects in the diminution of disease." * * * *

IT DOES NOT STAIN the most delicate fabrics—an advantage possessed by no other preparation offered to the public for similar purposes.—Prepared solely at

SIR W. BURNETT'S FACTORY, MILLWALL, POPLAR.

Sold at the office, 53, King William-street, London-bridge; and by chemists, shipping agents, and others, in every town in the United Kingdom.

In imperial quart bottles, price 3s., bottle included.

*** The only genuine disinfecting Fluid is sealed over the cork with the inscription 'SIR WILLIAM BURNETT'S PATENT DISINFECTING FLUID," and secured outside the wrapper by an engraved label, with a similar inscription, and address of patentee

PROFESSIONAL LIFE ASSURANCE COMPANY,
Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution

Incorporated.—Capital £250,000.

Established upon the mixed, mutual, and proprietary principle. 57

Rates essentially moderate.—Every description of policy granted. Immediate, survivorship, and deferred annuities; and endowments to widows, children, and others.—Every policy (except only in cases of personation) indisputable.—The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australasia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties.—Persons of every class and degree admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 14s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.

Prospectuses, with full details, may be had at the office.—Applications requested from parties desirous of becoming agents. EDWARD BAYLIS, Actuary and Secretary.

Offices, 78, Cheapside, London.

IMPORTANT TO EMIGRANTS.—UNITED STATES OF AMERICA (in the State of Georgia).—FOR SALE, ONE HUNDRED AND TWENTY THOUSAND ACRES OF FREEHOLD LANDS.

The above lands lie between 31° and 32° north—distant from the sea about 100 miles, and from England 18 or 20 days' sail. Climate delightful, and locality healthy—bounded by the great navigable rivers, the Flint and the Ocmulgee—by the former a communication is open with the Gulf of Mexico, the Floridas, Texas, New Orleans, the Mississipi, and Mexose Rivers, navigable for several thousand miles; and by the latter (the Ocmulgee), which falls into the Alatamaha, a direct communication is open to the Atlantic Ocean. At the recommendation of many philanthropic and influential friends, 100,000 acres of the lands situated in Irwin County have been appropriated, to divide into allotments of 25 acres, to enable persons of the most limited means to become purchasers, and embrace the opportunity of emigrating to a country where they will reap the fruits of their industry, and eventually become independent members of society. 58

It is proposed to divide the 100,000 acres into 4000 lots of 25 acres, at 8s. per acre, or £10 per plot. It is also proposed to issue scrip certificates for each 25 acres, to be paid for in four equal instalments of 2s. per acre—the first on delivery of the scrip, the remaining with a rest of three months between each. At the last payment the scrip receipt will be exchanged for a certificate, registered in the Land Office of the State, which will entitle the holder to the possession in fee of the lot numbered and specified in such certificate. An agent on the lands will point out and place the holder of said certificate in possession.

The purchasers of the several lots will be entitled to the minerals or products which may be found on the property so secured—thus considerably enhancing the value to be attached thereto.

It is further proposed, that the agent at Charleston or Savannah shall advance the emigrant, on arrival at either port, by way of loan, on the deposit of his registered certificate, such sum as he may require (not exceeding 4s. per acre) to be repaid in twelve months, with interest at 5 per cent., or at such periods as may be agreed upon. This advance to be applied *solely* to defray expenses incurred in reaching his location, and to the purchase of necessary implements required for his use. Should default arise by non-payment of loan, or non-fulfilment of agreement, the land referred to in said certificate, with all and every improvement thereon, will become forfeited to the vendor, or his assigns, and to whom the purchaser or his assigns will be bound to render up peaceable possession, under a penalty of £50, recoverable in any court of justice in the State of Georgia. Immediate steps will be taken to re-survey and divide the land into allotments of 25 acres. The survey, it is hoped, will be completed within six months; but previous to which no general location can take place. Notice will be given in the newspapers of the receipt of the re-survey, and new maps of the different lots. To such parties as, in the meantime, choose to pay in full for their allotments, a discount of 5 per cent. per annum will be allowed.

Every information may be obtained relative to the above, &c., from Richard Kelly, Esq., 1, Royal Exchange Buildings, London, where applications for scrip may also be addressed; or to Mr. James Todd, land and mine surveyor, Abergavenny.

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